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DUPLICATE

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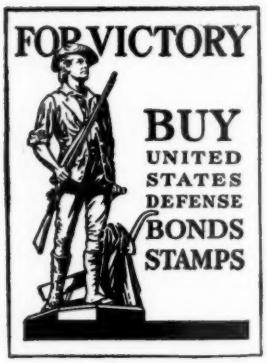

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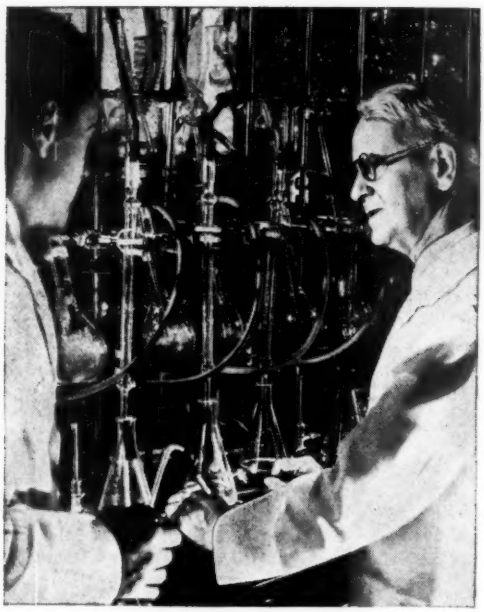

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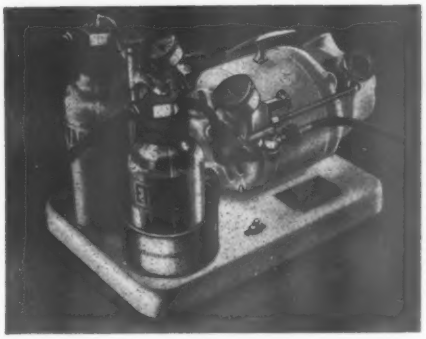

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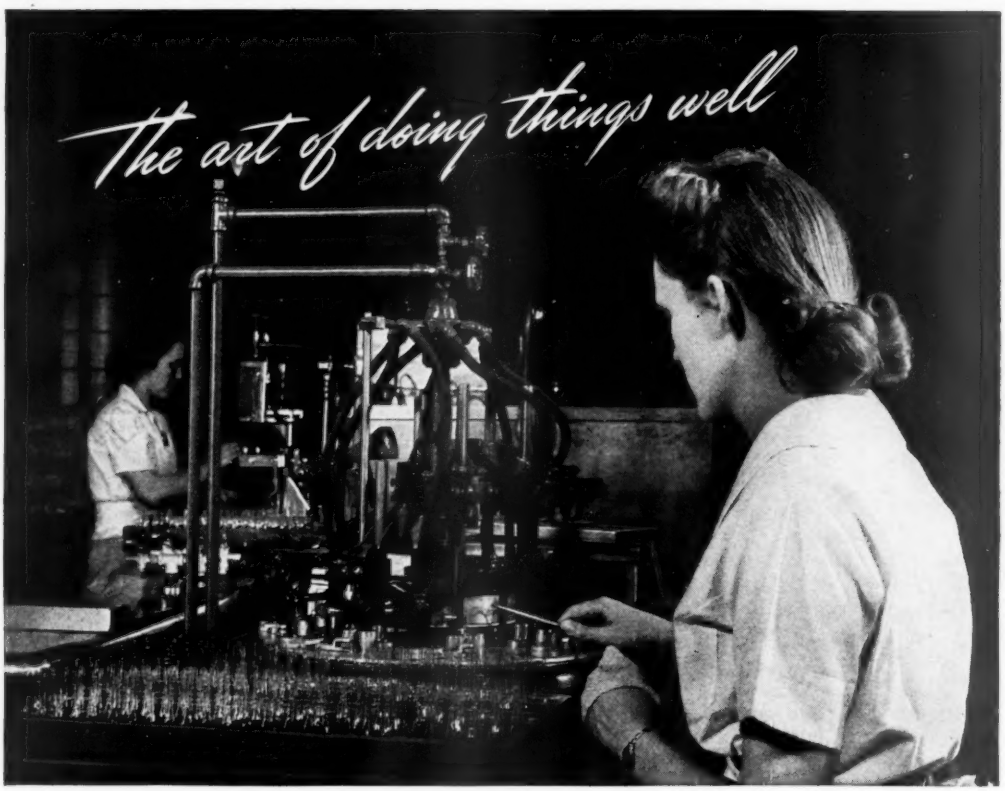

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RICHMOND, VA., MAY, 1942.

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Guest Editorial

The Mineral Oil Vitamin A Problem

IN 1927, two groups of workers, Burrows and Farr,[1] and Dutcher, Ely and Honeywell[2] found that rats fed an adequate laboratory diet which supplied vitamin A as butter fat grew poorly and eventually died when mineral oil was given to them. The deficiency which developed in the rats was typical of vitamin A deficiency. At this time, it was not known that carotene and vitamin A were separate substances and hence the later work of Moness and Christiansen[3] only confused the problem when they found that vitamin A deficiency did not appear in their rats when they ate the same diet and received the same amounts of mineral oil. However, they had changed the sources of vitamin A from butter fat to cod-liver oil.

When Moore[4] showed that Vitamin A and carotene were chemically different substances, it became apparent that mineral oil might have a selective effect on one and not the other. This assumption was proved by further animal experiments.[5]

The importance of this work led two of us to apply the facts learned from animal experiments to patients.[6] Several patients were placed on diets high in carotene and the blood carotene levels followed. It was found in all of these patients that the blood carotene levels would increase to several times their original level in the course of twelve to fourteen days on such diets. If mineral oil was then given these patients, the blood carotene levels would slowly fall and in most cases, would drop to the original levels in about a similar length of time. We tried to mimic the common human methods of taking mineral oil by having one group of patients take 20 cc. of oil before meals; a second group 20 cc. before the morning and night meals and a third group 20 cc. before retiring.

The first two groups of patients had a sharp fall in the blood carotene when mineral oil was taken, but the third group which took mineral oil only at night had little fall in the carotene levels during the ten days the experiment lasted.

It was our belief, at this time, that perhaps small amounts of mineral oil could be taken at night without robbing the ingested food of its carotene. This theory was later shown to be untrue.[7] Further experiments were done[8] to determine whether some of the more commonly used types of emulsified mineral oils would have the same effect as plain mineral oils. To our surprise, we found that even though such preparations have only 60 to 80 per cent mineral oil, their effect in removing carotene from ingested food was the same as in more concentrated mineral oils. We later fed mineral oil saturated with crystalline carotene at *room temperature* and found that this also robbed the body of food carotene. When we fed mineral oil saturated with crystalline carotene at *body temperature,* we found that this mixture did not remove the carotene from the food. The difference in the carotene saturation of mineral oil at room and body temperatures was only 0.02 per cent. This difference seemed at first glance to be too small to have any such profound effect. However, if one applies this small

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differential in per cent to units of vitamin A, the results are surprising. At body temperature, two ounces of mineral oil (60 cc.) can absorb 280,000 international units of vitamin A as carotene. At room temperature two ounces of mineral oil (60 cc.) can absorb 240,000 international units of vitamin A as carotene. This difference of 40,000 units in the saturation of mineral oil with carotene at room and body temperatures is greater than the total number of vitamin A units in our high carotene diets. This small percentage difference in saturation of mineral oil with carotene at room and body temperatures then explains why the carotene mineral oil mixture was ineffective in protecting the food carotene unless the oil was saturated with carotene at body temperature. It likewise explains why even an ounce of mineral oil taken before retiring can pick up and hold all of the carotene of the food with which it comes in contact.

Inasmuch as mineral oil has an affinity for carotene but not vitamin A we thought it might be possible to make a mixture of mineral oil and cod-liver oil which would indirectly prevent the vitamin A deficiency of animals which develops when mineral oil and carotene are given. Such experiments were devised and it was found that the animals on this regimen could remove the vitamin A from the cod-liver oil mineral oil mixtures quantitatively.

Most of us obtain a large per cent of our vitamin A from the breakdown of carotene containing foods. The continuous use of mineral oil then would prevent us from absorbing this carotene and would slowly deplete our vitamin A stores and lead to a vitamin A deficiency unless some source of vitamin A other than carotene was supplied. If mineral oil is to be the cathartic of choice and is to be used for any period of time longer than a month, the carotene loss to the mineral oil can be compensated for by giving with it one or two teaspoofuls (4-8 cc.) of U.S.P. cod-liver oil or its equivalent in other preparations of fish liver oils. This is like borrowing from Peter to pay Paul, but nevertheless, it answers the problem of carotene loss to mineral oil.

ARTHUR C. CURTIS, M.D.,
University Hospital, Ann Harbor, Michigan.

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THE USE OF SULFANILAMIDE IN COMPOUND FRACTURES*

FRED F. DAVIS, M.D.,
Lewis-Gale Hospital,
Roanoke, Virginia.

Compound fractures have always been a major source of trouble to both patient and physician. Prior to twenty-five years ago good results were rarely obtained. The mortality was high and in the cases which recovered the limb was often lost or left badly crippled. The first real advance in treating these injuries was made during the first World War when the Dakin-Carrel method was instituted. This method recognized the importance of adequately caring for the soft tissue wound. The results were far more satisfactory than had been obtained by any previous form of treatment. However, the problem of caring for the fracture itself was in no way minimized. The Orr treatment, developed some years later, solved many of these problems. Briefly, this consists of cleansing, debridement, packing with petrolatum gauze and immobilization in a plaster cast. Although this method had some undesirable features, it proved to be reasonably satisfactory and was in rather general use in this country prior to the advent of the sulfonamide drugs.

Fig. I.—Case I. This is a post reduction X-ray showing the vitallium plate holding the fragments in good position and alignment.

*Read before the Roanoke Academy of Medicine at its meeting on February 2, 1942.

With the coming of these unbelievably effective drugs it was inevitable that there should be a change in the treatment of compound fractures. However, the development of vitallium metal by Doctors Venable and Stuck, of San Antonio, Texas, played no small part in bringing about the present concept of the management of these injuries. This metal causes little or no tissue reaction, and so enables us to secure and maintain perfect apposition and immobilization in this troublesome group of fractures. It is rarely necessary or advisable to remove appliances made of vitallium. Even in the presence of infection they show little tendency to act as foreign bodies.

Fig. II.—Case II. This X-ray was taken after union was partly complete. It shows a satisfactory reduction maintained without internal fixation.

The exact mode of action of the sulfonamide drugs is not known, although much experimental and clinical work has been done. It has been shown that even in low concentration they exert a bacteriostatic effect. When used locally in wounds the concentration at the site of the potential infection is many times greater than can be secured by oral adminis-

tration. As shown experimentally by Key and Burford wound healing is not retarded. Clinical experience bears out this finding. Relatively large quantities can be used without systemic reaction. We have used as much as one ounce in a wound with no untoward symptoms. Theoretically, it would seem that sulfathiazole should be more effective when used locally. However, as shown experimentally by Hawking, the local concentration in the wound is less and the penetration into the tissue is less than it is with sulfanilamide. Also it is more expensive. Sulfathiazole does have a greater bacteriostatic activity against the staphylococcus and it persists for a longer period in the wound. In this series of cases only sulfanilamide has been used. It is our feeling that one of the sulfonamide drugs should also be given orally when infection is especially feared. In these grossly contaminated compound fractures liberal quantities of the powder should be dusted into the wound and spread gently over each layer of tissue. Spraying sulfanilamide on is probably sufficient in clean operative wounds.

Figs. III and IV.—Case III Films made before and after reduction. Fairly satisfactory reduction maintained without internal fixation.

It is unnecessary and probably inadvisable to autoclave the powder. The chemical changes brought about by autoclaving are not accurately known. Also it has been found that the autoclaved powder sometimes forms a stone-like deposit in the wound which interferes with healing.

Recent changes in the treatment of compound fractures have in no way minimized the importance of fundamental principles. The first consideration is always the patient as a whole. Shock and pain must be combated. Then a plan of treatment is devised to suit the individual patient. Some of the factors influencing the decision as to treatment are the general condition of the patient, the extent of soft tissue injury, the type and location of the fracture, and the length of time that has elapsed since injury. As soon as the patient's general condition permits, the wound should be thoroughly cleansed with surgical soap and large quantities of warm saline solution. Debridement should be thorough and all foreign bodies carefully searched for and removed. No tissue should be sacrificed except that which is definitely devitalized.

On December 1, 1939, we started using powdered sulfanilamide in all fresh wounds. Although drains were rarely used the wounds healed without evidence of infection. We then felt that in all probability fewer complications would develop in compound fractures if they also were closed without drains. This proved to be true. During the past twelve months, from November 1, 1940, to November 1, 1941, we have treated thirty compound fractures by implantation of sulfanilamide powder and primary closure of the wounds.

Injured nerves and tendons are repaired if the patient's condition permits. Otherwise, a secondary repair is done later. No other sutures are used except in the skin. The edges of the skin wound are approximated without the use of drains. If an accurate reduction cannot be maintained otherwise,

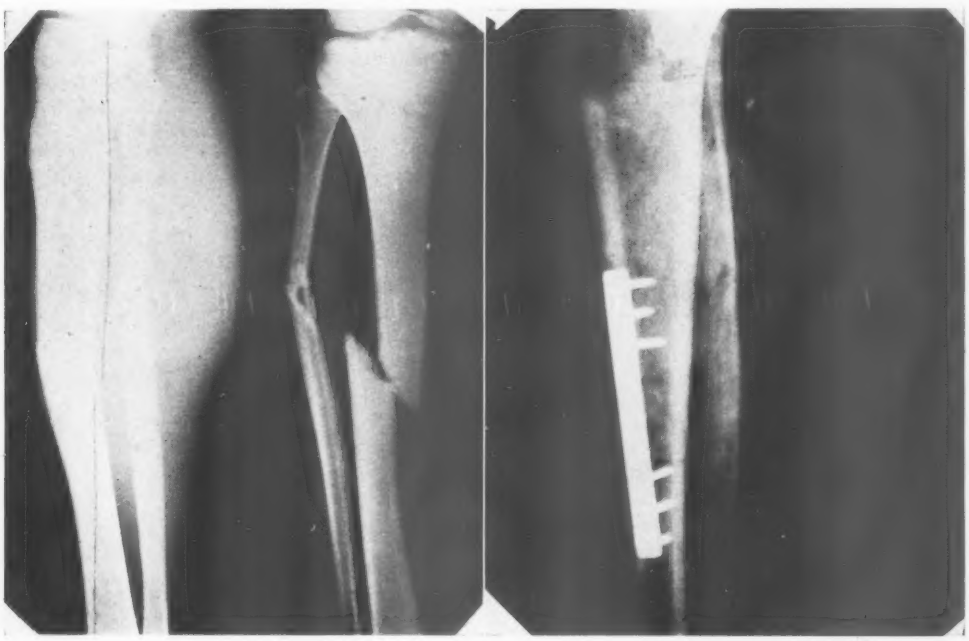
we do not hestitate to use internal fixation. Appliances made of vitallium are preferred whenever possible.

The wounds in twenty-eight out of the thirty compound fractures have healed by primary intention. In two cases local infection developed. There was no systemic evidence of infection in either of these cases. In one case infection was confined to the soft tissues and in the other a localized osteomyelitis developed. This gives an incidence of infection of 6.6 per cent. Jackson reports an incidence of infection of 5.6 per cent in a series of fifty-four cases, as compared with infection in 54 per cent of a control group of fifty cases. We had no gas infection in these thirty compound fractures, nor has this occurred in any other wound in which we have used sulfanilamide. Jackson reports none in the fifty-four cases treated in this manner but five occurred in the control group of fifty cases. Campbell and Smith report a reduction in the incidence of infection from 33.3 per cent to 18.1 per cent by the use of sulfanilamide locally. Jenson, Johnsrud and Nelson report a reduction in the incidence of infection from 27 per cent to 5 per cent by the use of sulfanilamide locally.

We know of no other treatment of compound fractures that offers such hope of complete recovery without disability as this method does. Therefore, we wish to emphasize its advantages and advocate its more general adoption.

A few illustrative cases are briefly described:

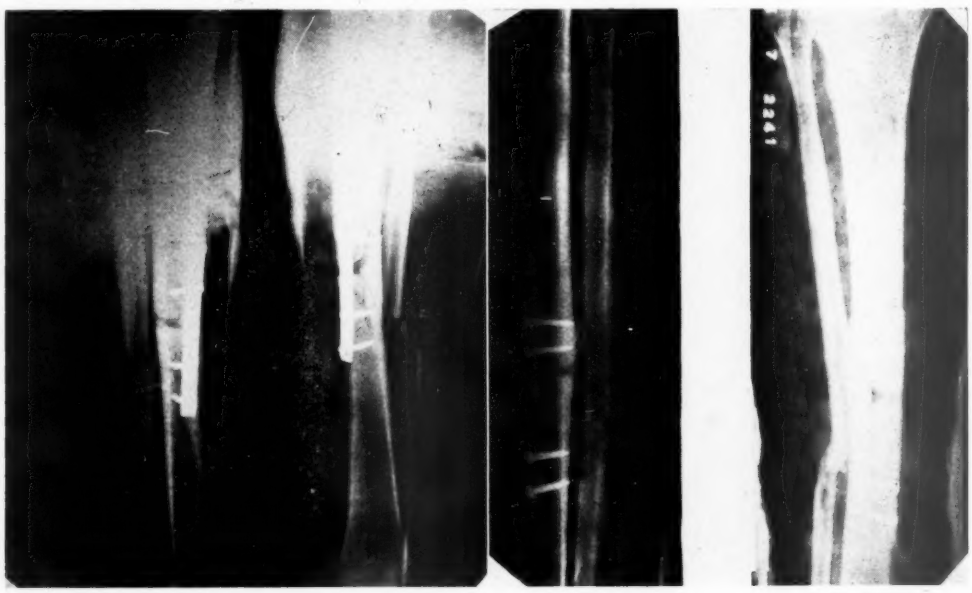
Case I.—Master K. H. W., white, male, fourteen years of age, admitted to the hospital February 8, 1941, with a compound fracture of the left tibia and fibula with extensive soft tissue injury and severance of the posterior tibial artery. The foot and leg appeared bloodless and it was feared an amputation would be necessary. The severed artery was ligated and the fracture reduced. The position was maintained with a four-screw vitallium plate and a cast applied. Sulfanilamide powder was dusted into the wound and the skin edges approximated without drains. Circulation was gradually re-established. The patient was dismissed from the hospital on the twelfth day. The cast was removed in eight weeks and it was found that the wound had healed completely without evidence of infection. This child was dismissed sixteen weeks from date of injury with no percentage of permanent disability.



Figs. V. and VI.—Case IV. Films taken before and after reduction showing satisfactory position maintained with vitallium plate.

Case II.—Mr. R. B. C., white, male, twenty-three years of age, admitted to the hospital February 28, 1940, with a simple fracture of the left tibia and fibula and a compound fracture of the right tibia and fibula. A closed reduction was done on the left leg; an open reduction on the right. Sulfanilamide powder was dusted into the wounds and the skin edges were approximated without drains. Position was maintained satisfactorily by the application of a cast without internal fixation. The cast was changed six weeks later. It was found that this wound was entirely healed and no evidence of infection was present. The patient was dismissed as cured in five months from date of injury with no percentage of permanent disability.

Case V.—Mr. J. L. M., white, male, fifty-six years of age, admitted to the hospital May 29, 1941, with a compound fracture of the right tibia and fibula. Under general anesthesia, the routine treatment for compound fractures was carried out. A six-screw vitallium plate was applied to the tibia, the skin edges were approximated without the use of drains and a cast was applied. The padded cast was removed June 27, 1941; the wound was found to be entirely healed and no drainage was present. The sutures were removed and a non-padded cast and walking iron were applied. This cast was discontinued August 12, 1941, and the patient was dismissed to return to work August 27, 1941. There was no permanent disability in this case.



Figs. VII and VIII.—Case V. Films showing position maintained satisfactorily by vitallium plate and showing bone graft held in place with vitallium screws.

Case III.—Master E. P., white, male, fifteen years of age, admitted to the hospital February 1, 1941, with a compound fracture of the lower end of the left radius and ulna. This child had fallen off a horse and the compound wound contained a large quantity of dirt. The wound was cleansed in the usual manner, packed with sulfanilamide powder, closed without drains, and a cast applied. This wound healed without any evidence of infection, and the patient was dismissed as cured eight weeks from date of injury.

Case IV.—G. B., colored, male, thirty-four years of age, admitted to the hospital November 8, 1940, with a fracture of the second dorsal vertebra and a compound fracture of the right tibia and fibula with extensive soft tissue injury. The wound contained a large quantity of dirt and gravel. Under general anesthesia, the wound was thoroughly cleansed, all foreign particles were removed and a careful debridement done. Reduction was maintained with a four-screw vitallium plate. A circular plaster cast was applied from the toes to about six inches above knee. Patient developed post- operative pneumonia and was critically ill for several

weeks. December 26, 1940, the cast was removed and wound dressed. It was then found that the wound had healed without any evidence of infection. The patient was dismissed from the hospital January 9, 1941, with a cast and walking iron in place.

Re-check x-ray from time to time showed no callus being thrown out. On May 14, 1941, the cast was discontinued and a brace applied. The bone still failed to show any evidence of healing. July 16, 1941, a massive bone graft was done. This graft was held in place with four vitallium screws. Sulfanilamide powder was dusted into the wound and the skin edges were approximated. This wound healed promptly and without evidence of infection. At the present time union has occurred and the patient is walking without support.

Summary and Conclusions: We have reported thirty compound fractures treated by implantation of sulfanilamide powder and primary closure of the wound. Twenty-eight of these cases healed by primary union, and in no case did a severe infection with systemic reaction occur. There were no cases of gas infection in this series of patients.

It is our opinion that the mortality and morbidity following compound fractures can be definitely lowered if the treatment outlined above is followed routinely.

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Lewis-Gale Hospital.

DIPHTHERIA IN A NUTRITION CAMP
I. Epidemiology, Immunology and Public Health Study*

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THE CAMP

Camp Augusta is situated in Augusta County, twenty-three miles west of Staunton, Virginia. This summer nutrition camp has for five years been financed by private donations and appropriations by the City of Staunton and the Augusta County Board of Supervisors. There have been experienced directors and a nutritionist, aided by counsellors who were high school or college students. Cooks and unskilled laborers have been furnished and paid by the W. P. A., the nutrition camp being listed as a W. P. A. project.

The buildings are those of an unused C. C. C. Camp which have been repaired and partly remodeled, making it an ideal summer camp location. There are a number of large dormitories with ample accommodations to take care of one hundred and seventy-five people. There is a large dining and recreation hall, a well equipped kitchen, an infirmary building, and several smaller buildings which are not often used.

This camp was inspected before its opening and was given a certificate of approval by the State Health Department. All buildings were well screened The sewage disposal system was entirely satisfactory, regulation pit privies being used. During the entire camp period the water supply was chlorinated and it tested bacteriologically pure by weekly samples sent to the State Health Department laboratories.

*This and the following paper by Dr. B. H. Payne were presented before the Augusta County Medical Society at its meeting in August, 1941.

XUM

Dishwashing methods had been greatly improved over those used in previous years. Every recommendation of the sanitation officer had been adopted and was carefully followed throughout the season. Dishes were allowed to dry in wire baskets, thus eliminating use of dish towels. In addition, since all food handlers were frequently examined during the outbreak and their throat cultures always found negative, we do not believe it probable that diphtheria spread through the kitchen or dining room at any time. No milk other than pasteurized milk was used.

HISTORY OF CHILDREN BEFORE THE OUTBREAK

A graduate nurse was always in attendance at Camp Augusta. She had a record of physical examination done on every child at the time of admission. They were nothing more than a transported group of school children, of whom about 90 per cent were known to have been immunized against diphtheria. (92 per cent later found to have had toxoid, negative Schick, or both.) Most of the children were selected because they were somewhat underweight or underprivileged and would be benefited by a vacation with good food and proper training. Ages 6-14, boys and girls.

Very few visitors had been allowed at Camp Augusta during the five weeks preceding the diphtheria outbreak. The usual term of the camp is six weeks. There had been no unusual amount of sickness among the children, although several had been in the infirmary a few days with sore throat. This had happened in camp every year among those with diseased tonsils. Staunton physicians had as usual alternated, without charge, in bi-weekly visits and in answering special requests of the nurse to see sick children. None of those with sore throat were suspected of having diphtheria until Dr. Marshall Payne found a suspicious throat on June 12, 1940. Diphtheria was verified by means of culture and smear. It was never possible to determine just how and why diphtheria first developed in this camp.

TWENTY-EIGHT CASES OF DIPHTHERIA

Immediately after diagnosis, the County Health Department was notified by Dr. Payne and asked to take necessary action at Camp Augusta. (Noon, June 13, 1940.) Because of the distance from town, all available material which might have been needed was taken to the camp. Diphtheria antitoxin was administered to three children in the infirmary found to have large tonsillar membranes. Assisted by a county health nurse this Saturday afternoon was spent by the Health Director in making examinations and in institution of quarantine. The situation was an unusual one and called for detailed instructions to a large number of people. All throats were inspected. We had a sufficient number of culture tubes to do throat smears on all food handlers and most of the adults. There was enough Schick material to test over half of the camp and this was completed the next day.

One wing of the infirmary building was isolated for observation of children with sore throat or any suspicious complaint. The set-up was necessarily a little different from that in a hospital ward and required considerable study to work out a safe routine for the camp nurse. Food handling, excreta disposal, changing of beds, and disinfection were some of the points discussed.

The camp leaders were then given instructions concerning care of the remaining 122 exposed children. The three patients had all been in the infirmary for several days before developing a membrane, so we hoped that our troubles ended at that point. Frequently children have been sent home from school with diphtheria and we have seldom had clinical disease in exposed classmates, over 90 per cent of whom are immunized in Augusta County.

Camp authorities were asked to arrange for the services of a physician who could spend any required amount of time at Camp Augusta. Dr. Boyd H. Payne accepted this responsibility and for several weeks made at least one trip a day to the camp. He has written a paper describing the very satisfactory response of patients to diphtheria antitoxin. Of considerable interest was one of his patients who developed nothing but diphtheritic conjunctivitis and marked edema around both eyes, showing evidence of unusual invasive action by the organism. There were no deaths or lasting complications.

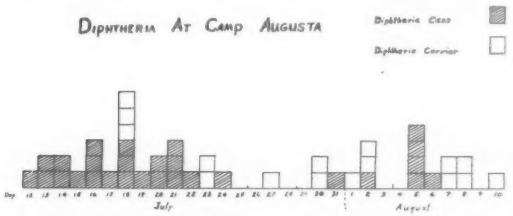
On our second day, Sunday, there were two new cases. Schick tests were completed and all children again inspected. (Schick control material was not available, but by recording 24-hour test readings the protein reactions could be distinguished.) Again much time was spent emphasizing to those in charge the requirements of isolation, disinfection, etc. Plans were made for obtaining a second nurse and opening a clean emergency ward in another building.

By Monday, June 15, several cases had developed

among those isolated for observation. Exposure of those remaining in this group had been so heavy that we decided to give all ten a prophylactic dose of 1,000 units of diphtheria antitoxin and placed them in an outlying building. Here they were completely isolated under care of a third nurse until they were sent home, none developing diphtheria. Two consecutive negative nose and throat cultures and no exposure to a known case or carrier during time of culturing were the requirements for discharge of any child from camp.

On June 15 sufficient tubes were obtained from the Luray Laboratory to make possible a throat culture on every person in camp. This nearest of State Laboratories is 57 miles away and with very poor train connections. Time lost was so valuable that, after the first two lots of cultures, we sent all samples to Luray by automobile and obtained results by telephone. The expense of such a method will be discussed in a later paragraph.

For the first ten days, one to three new cases of diphtheria were detected every day. (Chart) Three



carriers had been detected by positive cultures and these were the nucleus for a completely isolated "carrier" group which finally numbered about 15. The next eight days passed with only one new case developing. All children with positive Schick tests had been given prophylactic dose of 1,000 units of antitoxin on the 4th-5th day after testing. The situation seemed to be under control. Then during the next five days there were two cases and on August 5 there were four cases.

At this point it became evident that the disease was not being controlled by the best quarantine and segregation that we could possibly carry out. Several people in camp were scheduled soon to leave to attend college or for other good reasons, kitchen and W. P. A. labor were becoming dissatisfied and discouraged, and public schools were to open in a short time.

We had observed with considerable interest that none of the 25 children who had had tonsillectomies developed diphtheria. Members of the Augusta County and Staunton Boards of Health were consulted and much against the wishes of all of us it was decided best to give 1,000 unit prophylactic doses of diphtheria antitoxin to every child in camp *who had not had his tonsils removed.* This material was obtained and administered on August 7 to 44 Schick *negative* children. Not a case of diphtheria developed in camp after that date, although five new carriers were detected within the next three days.

TONSILLECTOMY GROUP DID NOT DEVELOP DIPHTHERIA

The 25 children who had no tonsils were on August 7 re-assorted into two large groups of boys and girls, disregarding size and age. As previously observed, again none of these contracted the disease and none of the 25 were ever given antitoxin. It appears significant that these children had such a definite advantage in resisting the organism. Five of them were at one time or another diphtheria carriers. As would be expected, their throats became negative a little more quickly than those having tonsils. (Average release time 14.5 days as compared with 24.6 days.)

NO SERUM REACTIONS

Use of prophylactic diphtheria antitoxin appears to be universally frowned upon for exposed children of school age who can be closely observed, and especially where they are Schick negative.[1] We particularly disliked using unnecessary prophylactic antitoxin in this camp because we knew that the 125 children came from only 89 families and many were close neighbors after discharge. Some would necessarily come into later contact with cases or carriers released on the basis of negative cultures (supposedly non-infectious). Not more than 2-3 weeks' protection could be expected from such passive immunity and then serum sensitiveness was a very undesirable possibility to be reckoned with in case they developed diphtheria. Neither disinfection of belongings nor release cultures can always be perfect, so we were fortunate that diphtheria occurred in only two homes of the 125 children released from Camp Augusta. Three children who had prophylactic antitoxin at Camp Augusta required therapeutic doses 2-4 weeks later. We were exceedingly fortunate that none were serum sensitive at that time.

Of the children receiving antitoxin, three having

had a therapeutic dose developed mild urticaria, but none of those given prophylactic dose suffered any reaction. In reference to reactions, we have noted great improvement in diphtheria antitoxin during recent years.

PROBLEMS IN ISOLATION OF WELL CHILDREN

The swimming pool happened not to be in use for several days before the outbreak of diphtheria and at no time afterwards. Showers were only used by the "clean groups" with negative throat cultures. As a precaution, the floors were scrubbed by W. P. A. workers between times they were in use by any groups. Details such as thorough cleaning of wash basins, and even disinfection of toys, had to be strictly enforced. Counsellors saw that tooth brushes were not exchanged and that paper drinking cups were not passed around, but destroyed. There was a small penalty if a child was seen putting his fingers in his mouth.

The camp was large enough to permit the various "clean groups" of about fifteen children to be kept segregated. These groups played separately and had individual tables in the large dining hall.

Without going into further particulars, it can be said that we believe it nearly impossible for such a group of children to have been more carefully handled.

RESULTS OF CHECK ON INOCULATED CHILDREN

Of the 125 children in this camp, 116 or 92.8 per cent had been considered immune in school. The cases as related to kind of previous inoculation were as shown in Table I. These groups are too

TABLE I.—DIPHTHERIA AS RELATED TO IMMUNIZATION STATUS

No. Children	*Immunization*	*Contracted Diphtheria*	
13	Toxoid followed by neg. Schick*	3	(23%)
82	Toxoid only	20	(24%)
21	Neg. Schick only*	3	(14%)
116		26	22.4%

small for comparison of diphtheria attack rates. The fact of interest is that 22 per cent of 116 school children thought to be reasonably well protected contracted the disease. It might also be mentioned that the attack rate was highest in the 9 and 10 year old groups, being 36 per cent among those of 10 years. None below 7 years of age and only one above 11 contracted diphtheria in camp. There were only six present under the age of 7, however, but eighteen above 11 years.

*Refers to Schick test in school.

OUTCOME WITH 91 SCHICK NEGATIVE AND PREVIOUSLY INOCULATED CHILDREN

Of the 116 children previously immunized or found Schick negative in school, seventeen were at the onset of the outbreak given 1,000 units of diphtheria antitoxin either because of very heavy exposure or because of positive Schick test at camp. This leaves ninety-nine children, most of whom should have had sufficient immunity in case of moderate exposure to diphtheria. Ninety-one of these had been found Schick negative when tested during the first few days of the outbreak, eight having developed the disease before a Schick was recorded.

We are particularly interested in the ninety-one children who had received medical attention in school and in addition had been found Schick negative at the onset of the outbreak. For the ninety-one children in question, the attack rate was 17.6 per cent (Table II). Note that ten of these that developed

TABLE II.—CHILDREN WITH PREVIOUS PROTECTIVE MEASURES AND NEGATIVE SCHICK TEST AT ONSET OF OUTBREAK

*Time since Immunization**	*No. Children*	*Cases Diphtheria*	
Within 1 yr.	18	4	22%
1-2 yrs.	22	6	27%
2-3 yrs.	15	1	7%
3-4 yrs.	19	2	11%
Over 4 yrs.	17	3	18%
	91	16	17.6%

diphtheria had been considered protected in school within a two-year period. (Five had had alum precipitated toxoid, two had had negative Schick test only, and three had had toxoid followed by negative Schick tests.) The attack rate for the previously immunized children had been 22.4 per cent (Table I), but eliminating children protected with 1,000 units of prophylactic antitoxin we find that 26 per cent developed diphtheria.

COST OF OUTBREAK

Camp Augusta was scheduled to have closed on July 19, 1940, one week after the onset of diphtheria. Most of the children were released by August 12, but the last child did not leave until September 7.

*Received one dose of alum ppt. toxoid or considered protected on basis of negative Schick test in school. In addition, all these were Schick negative at onset of outbreak.

The total overtime expense for this camp was tremendous. Staunton and Augusta County authorities had asked the Health Department to keep every child under observation at Camp Augusta until he could be sent home without danger to others, so far as it was possible to determine. This was done with the result that there were no deaths, no lasting complications, and no appreciable spread of the disease.

The following is a list of unexpected expenses. No value is set for the time spent by the Health Department personnel in working with this outbreak because it is in the line of duties paid for when a county supports a health department.

Extra cost to W. P. A. (labor, drugs, supplies, etc.)	$1,613.74
Extra cost to Staunton and Augusta County (food, drugs, etc.)	1,688.65
Telephone calls to laboratory (Paid by State Health Department)	24.95

OTHER STATISTICS

Health Director

Trips to Camp and Luray Laboratory	42
Distance traveled (approximately)	2,128 miles
Time spent (approximately)	106 hours

State Laboratories

Nose and throat cultures	1,292
Virulence tests	34

COMMENT

Punch cards were used to record a large amount of information concerning each child in camp. Nothing of especial significance was found in studying time interval since child was immunized, kind of immunzation, or amount of alum precipitated toxoid given. In nearly all cases the agent used was one dose of Parke, Davis & Company alum precipitated toxoid. It is impossible to say that two or three doses of alum precipitated toxoid or some other kind of immunizing agent would have given appreciably better protection in this particular outbreak. We do recommend, however, that two doses of alum precipitated toxoid be given at the ninth month of life, with one month interval between doses; and that a single reinforcing dose be given when or preferably just before the child enters school. There is no desire that this paper should encourage unnecessary tonsillectomies as a factor in diphtheria prevention nor should it discourage the use of prophylactic diphtheria toxoid.

A number of outbreaks have been described in the literature in which the diphtheria bacilli appeared to possess an enhanced degree of malignancy or dispersiveness. In the famous outbreak at Leeds the organism showed cultural characteristics which were carefully studied and led to the classifications as "gravis" type of Corynbacterium diphtheriae.[2, 3] Underwood[4] in a study of the Leeds outbreak reported twenty cases of diphtheria in Schick negative individuals. Eighteen of these had previously received 2-3 doses of some standard prophylactic immunizing agent other than alum precipitated toxoid. The findings were in general very similar to those at Camp Augusta. Frobisher[5] in a study of strains of C. diphtheriae in various parts of the United States had noted a marked increase in the number of "dissociating strains" (showing instability) in Alabama, Virginia, and Michigan in 1939 over 1938. He stated "One wonders whether Virginia is about to be visited by diphtheria of an enhanced degree of malignancy or dispersiveness." To those who worked with the outbreak at Camp Augusta this reads like a true prediction.

SUMMARY

1. An outbreak of twenty-eight cases of diphtheria in a children's nutrition camp could not be controlled by the usual public health measures.

2. The camp facilities and handling were known and fully approved before the outbreak (water, sewage disposal, screening, food handling, infirmary, etc.). A careful study of the outbreak was possible.

3. One hundred and sixteen (92.8 per cent) of the 125 children in this camp had previously had alum precipitated toxoid, negative Schick, or both. Twenty-six (22.4 per cent) of these contracted diphtheria.

4. The protection given by one dose of alum precipitated toxoid was less than that reasonably expected and previously noted when immunized school children have been exposed to diphtheria.

5. The negative Schick Test was of very little value in determining state of immunity possessed by the children. The same applied whether the test was done in school 1-2 years previously, or in camp before diphtheria developed, or both.

6. Exceptions to statements 4 and 5 were shown by all children having previously had their tonsils removed. Although there were five proven carriers among twenty-five of these children, none had diphtheria. Predilection for tonsillar tissue was exhibited, with one exception of diphtheritic conjunctivitis.

7. The organism was of "gravis like" type, as

found by a complete bacteriological study in State Health Department laboratories in Richmond, Virginia.

CONCLUSION

We believe that we were dealing with a diphtheria germ which possessed or had developed increased virulence or increased invasive properties. The Schick test when negative did not indicate sufficient protection against slight or moderate exposure to the organism. Too many children were not adequately protected by alum precipitated toxoid received within two years' time. Exceptions to this were the tonsillectomized children who behaved "according to usual rules".

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DIPHTHERIA IN A NUTRITION CAMP
II. Treatment of Twenty-Eight Cases of Diphtheria*

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The immunology and possible etiology of this diphtheria epidemic has been discussed by one of us in another paper and, therefore, will not be presented as a part of this discussion.

The total number of cases included in this presentation is thirty-three. Twenty-eight of these were treated in the camp and discharged as well and free from infection as carriers. One was hospitalized and will be presented as a separate case. Four developed diphtheria in their home after having had a prophylactic dose and being sent home.

It should be pointed out that these children were seen twice daily by Dr. Turner in the morning and myself in the afternoon and on each occasion all suspicious cases were examined and therapy begun immediately when indicated.

The children with diphtheria ranged in ages from six to eleven years, inclusive. One was six years, five were seven, four were eight, eight were nine, ten were ten, and five were eleven.

SIGNS AND SYMPTOMS

The predominating picture of the children was that of extreme toxicity, whereas, in a few cases due to the early finding of the membrane they had few complaints. If these were watched for another six or eight hours, symptoms characteristic of those very toxic developed. On admission the temperature ranged from 98 to 103.6; pulse from 84 to 140; respiration from 18 to 36; indicating that the toxicity in some children was greater than in the others. Twelve of these had headaches, ten complained of sore throat, four had nausea and vomiting, one was perspiring freely and seemed to be in shock, one had nose bleed, one complained of pain in the stomach and one came in complaining of toothache with high temperature, one had impetigo. It might be pointed out at this point that six developed heart murmurs which disappeared after having been kept in bed two weeks and gradually returned to normal with limited exercise. The highest temperature range after the antitoxin was given was 99 to 104.6, the peak usually occurring about eighteen hours after the administration of the antitoxin.

The diphtheritic membrane was located in every case on the tonsil. There was no membrane involvement of the nasopharyngeal or laryngeal areas and those children who had had tonsillectomies did not develop a membrane, although a few were found to have positive cultures.

The membrane was a dull yellowish gray in color and seemed to resemble a follicular tonsillitis. A small spot the size of a pin head seen in the morning by afternoon would be as large as a dime and involve the whole tonsil. The tonsil itself would be bluish, swollen, and beefy in color and texture. It is interesting to note that there was no foul odor from these cases as is generally seen in the usual type of diphtheria. It was further noted that no

*This and the preceding paper by Dr. V. A. Turner were presented before the Augusta County Medical Society at its meeting in August, 1941.

cervical adenitis prevailed and the children did not complain of the glands in their neck being sore.

THERAPY

The antitoxin used was that of Parke, Davis & Co. An excellent response was usually obtained with one 10,000 unit injection. There were only five given more than 10,000 units. One was due to a relapse after two weeks in a child having had two negative cultures at five-day intervals. Another with involvement of the orbital tissues will be discussed in detail. Another seemed to be quite toxic and it was thought advisable to give additional protection. As soon as any complaint was noted by one of the counsellors or nurses the child was immediately isolated and put to bed, antitoxin given where indicated and the child kept in bed for seven days after the temperature was normal. He was then allowed to get up and walk about the room and go to the bathroom for another week, and then was permitted to go outside for an additional week during which time two negative throat cultures were obtained. Skin tests were done on all children before the administration of antitoxin. There was no sensitiveness shown and no immediate reactions from the antitoxin. Children were placed on liquids until the temperature was below 100 and then on soft diet. All of the antitoxin was given intramuscularly in the gluteal region. The only complications developing were heart murmurs as described above. A few of the children developed such high temperatures that they became delirious; ice caps and cool enemas being used to reduce the temperature. Neosulfanil was given to seven children at the onset. (The feeling was that it was possibly a mixed infection. In one case there was impetigo.) The heart murmurs soon cleared up under rest in bed and careful observation. There were no casualties from any of these cases.

HOME CASES

F. G., aged 9 years, was given 1 cc of toxoid in 1939 and was Schick positive at the outbreak of the epidemic. He was given 1,000 units antitoxin then and sent home two weeks later and developed diphtheria four weeks and two days after the 1,000 units were given. There was a high temperature, severe headache and sore throat. He was given 20,000 units due to the history of his being Schick positive and the failure of 1,000 units previously to hold him. His sister, B. G., was found to be a carrier in camp and was isolated until two negative nose and throat cultures were obtained. She was sent home four days prior to the development of diphtheria by her brother but did not develop diphtheria until five days after the onset of his diphtheria. She was given toxoid in 1939 and was Schick negative in the camp. Two other children in the household were given 1,000 units prophylactic dose at the onset of F. G.'s diphtheria but B. G. was not given this 1,000 units due to the fact that she had recently been a carrier.

Three children, ages 7, 10, 11 years, from another family were at camp. One of these and a brother who did not go to camp developed diphtheria after returning home. The child from camp was not a carrier, had had toxoid in 1934 and was Schick negative, but was given 1,000 units late during the epidemic with the group that had tonsils. Twenty days later she developed diphtheria. After the administration of 10,000 units antitoxin convalescence was uneventful and there were no complications.

REPORT OF A CASE OF CONJUNCTIVITIS DIPHTHERICA

G. P., aged 11, came to the infirmary at the camp on July 13 complaining of swelling of the eyes and headache. She was seen by me and examined with no evidence of any infection about nose, throat or tonsil area. There was no discharge or membrane over the eyes or over the conjunctiva. Due to the fact that she had been Schick tested it was thought at first that she had a protein reaction, as there was no increase in temperature, pulse rate or respiration. There was marked swelling of the orbital tissues but patient could open the eyes and see clearly. Ephedrine and sodium phenobarbital compound was given at four-hour intervals during the night with no improvement by the following morning. She was again seen by me and found to have a gradual increase in the amount of edema about the orbital tissues. Urinary specimen was obtained and examined. No casts, albumen or marked decrease in the specific gravity were noted. On July 15 the patient complained of intense headache and her eyes were aching severely. Cold applications were applied and cultures taken. On the 16th she was seen by Dr. Wm. Lueders in consultation and 20,000 units of diphtheria antitoxin was given intramuscularly. Patient was delirious, pulse poor and respiration markedly increased and there was eleva-

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tion of temperature. Temperature at that time was 101, pulse 100, and the patient was brought to the hospital. On the 18th the temperature reached 104.6, pulse was 104, and respiration was 20. Cold boric acid compresses were kept over the eyes constantly, alternating with hot compresses. Patient was nervous and restless. Neosulfanil was given every four hours. She complained of marked soreness of the eyes and began crying because of pain in the eyes. Edema about the orbital tissues increased and there was protrusion of the eyeball. Patient became distended and was beating the bed with the body and fists. Morphine gra. 1/6 was given hypodermically. Compresses continued. On the 19th temperature was 103.6, pulse 94, respiration 20. Ten thousand units of diphtheria antitoxin was given intramuscularly. The following day the temperature dropped but patient continued to complain with marked pain in the eyes, crying out, and was quite toxic. Phenobarbital was used in conjunction with morphine, alternating the hours. She became very fretful and irritable and began expectorating a medium amount of whitish mucus. On the 20th the nose began bleeding. Patient was placed on sulfapyridine—½ tablet every four hours. On July 23 patient's temperature began to rise again. There was no improvement in the edema of the orbital tissues and each eyeball was markedly protruding. Twenty thousand units of antitoxin was given intramuscularly with a portion of this dropped in each eye and injected into the orbital tissues. Hot and cold compresses were continued to the eyes. Three hours later the temperature rose to 103.2, pulse 92, respiration 22. Patient drank liquids quite freely. Magnesium sulphate compresses were used on the eyes and the temperature began to drop. On July 25 it was noted that the eyes were not quite so painful as previously, the patient was not restless, and it was felt that some of the edema had diminished. On July 28 examination of the upper lids revealed some softening of the swollen area and each eyelid was incised by Dr. Lueders and a large amount of purulent exudate was obtained and the culture sent to the laboratory. Patient rested better and did not complain of extreme pain in her eyes or severe headache. The lids continued to drain and recession of the edema began. Patient was discharged improved after fifteen days in the hospital and remained at home in bed for two additional weeks due to the general weakness and fear of cardiac involvement. For a time there was adhesion of the supra-orbital tissues to the orbital ridge and drainage continued. This, however, eventually cleared up with total recession of the eyeball and no disturbance in vision. Patient had no complications following this illness. This patient was Schick negative just before onset. The cultures obtained from the eyes showed gram positive cocci singly and in pairs with some staph. albus and also many diphtheria bacilli present in formation. For this reason the sulfanilamide group was given in the treatment.

According to the literature there are two types of this conjunctivitis diphtherica: One, the superficial form which clings firmly to the conjunctiva but may be detached with forceps; The other, the deep form which this patient had, is of the infiltration type not involving the conjunctiva primarily but the soft tissues about the eyes. The lids are greatly swollen, red and tender on pressure. In especially violent cases the lids are of board like hardness. When the exudate within the tissue of the conjunctiva itself has already coagulated the vessels are compressed, the mucus membrane becomes stiff and void of blood and falls prey to necrosis. It is reported that conjunctivitis diphtherica occurs in those countries in which diphtheria is in general frequent and especially at times when epidemics of pharyngeal diphtheria rage.[1]

SUMMARY

1. Twenty-eight cases of diphtheria were treated in the nutrition camp. One was hospitalized in Staunton, Virginia. Four occurred in two homes following the discharge from camp.

2. An organism of the gravis-like type was encountered, as shown from cultures examined and a study made at the State Laboratory, Richmond, Va. The location of the organism showed a predilection for the tonsils. No children having had tonsillectomies contracted diphtheria. The course of the disease usually developed rapidly, producing severe toxicity as shown by the signs and symptoms. Heart murmurs developed in six cases, but with no permanent involvement.

3. After discharge of children from camp diphtheria occurred in only two homes. There were no deaths as a result of the outbreak and no permanent disability.

4. One case developed orbital cellulitis with no nose or throat involvement.

5. There was no serum sickness as a result of the antitoxin. Urticaria occurred only in three cases and then in a mild form.

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Professional Building.

PRESENT DAY CONCEPTS OF CANCER OF THE CERVIX*

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My interest in cancer of the cervix dates back nearly forty years to the time when, as an interne, I watched the earlier cases being treated by the Wertheim operation with its high immediate operative mortality and its very low percentage of five year cures—the clinical grade 3 malignancies treated by the vaginal hysterectomy done with the heavy Ferguson clamps with the detachable handles to be removed about a week post operative with practically no five year salvages. I recall the grade 4 cases treated with chloride of zinc packs with almost no improvement in their condition and of course no ultimate cures.

About 1915 we began using the Percy cautery in the far advanced cases, still reserving operation for the grades 1 and 2. The Percy cautery gave us an immediate amelioration of symptoms. It stopped the hemorrhage and sloughing and cured the local condition almost as well as radium. The objection to it was that, to use it properly, it required an abdominal operation, frequently in patients who were exceedingly bad risks, and necessitated nearly a three weeks stay in the hospital. It, of course, could not relieve metastases outside of the uterus itself even when in the pelvis.

About 1919 we began using radium, at first in small doses with an interval of about three weeks between the applications; usually three applications totalling from 3000 to 4000 mgm. hours. The radium was poorly screened and not very well applied. Still we found that we could do as well as with the Percy cautery at much less risk to the patient, and occasionally we had five year survivals.

About 1930 we began to use larger doses of radium, better screened and, I hope, more intelligently applied, and to supplement it with deep x-ray therapy.

Believing that the treatment of cancer of the cervix is more standardized at the present time than the treatment of any other malignancy, we have recently sent out a questionnaire to 28 of the leading clinics in the U. S. and Canada. Twenty of the questionnaires were returned, in a good many instances with personal letters from the heads of those clinics; and I wish here to acknowledge my indebtedness to them and my appreciation of their cooperation. I would like to give you briefly some of those replies and then try and give you a composite picture of the way cancer of the cervix is being treated today in those clinics.

The first question was: Are any cases of cancer of the cervix considered operable? 7 answered yes; 13 no.

The second question was: If yes, what are the indications for operation? The replies were: "A few clinical group 1 carcimonas", "Early leukoplacic type, histologically grade 1", "Young women with an early lesion": "Early adenocarcimona which has not responded to irradiation in one month", "Early carcimona with inflammatory pelvic lesions or pelvic tumors".

The third question was: How much radium is used? The replies varied from 4,000 to 10,000 mgm. hours.

The fifth question: What screening is used? This answer was fairly constant. From .5 to 2mm. platinum, occasionally with brass, usually with rubber additionally.

The sixth question was: Is the total dose of radium given at one time? 12 answered yes, 7 no. Those who said no usually gave three treatments from one to three weeks apart.

The eighth question: What amount of x-ray do

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you give and the number of portals? The replies stated from four to eight portals; from 8,000 to 16,000 "r" total given over a period of from three to six weeks.

One question was: Do you give x-ray intravaginally and in what dose? 13 answered no. Those that answered yes gave from less than 1,000 to as much as 7,000 "r". One stated that he used intra-vaginal x-ray where radium was contraindicated because of pelvic infection.

The five and ten year salvages varied. The average for the country generally is a five year survival of 31.2 per cent for all cases treated and a ten year survival rate of 18.1 per cent. The five year survivals of clinical grades 1 and 2 run well over 50 per cent. The survivals for grade 4 are less than 2 per cent. Dr. George Gray Ward has published reports of 711 cases with 98 per cent follow-up with 55.8 per cent survival in early cases and 21.4 per cent in late. The Mayo Clinic reports 91.8 per cent follow-up on 1,491 cases with an average survival rate of 41.4 per cent of five year survivals and 25.7 per cent ten year survivals.

Several of the clinics have reported that they occasionally use interstitial irradiation, either with radon or needles containing a small amount of the radium element. Drs. Pitts and Waterman feel that they have a slight increase in their five year salvage. Recently Drs. Teahan and Wammock reported a small series of cases in which they had opened the abdomen and placed needles in and around the cervix from the vagina guiding them in place with a hand in the abdomen. It is too early for them to evaluate this method of treatment in five year cures.

The question: Has your five year salvage improved since the institution of x-ray? This was usually answered in the affirmative. None definitely answered in the negative. One stated he was not sure.

One question asked was: What do you do if a large fibroid complicates the picture? The replies were: "Ignore the fibroid and treat the cancer."

Question 20 asked: What percentage of cancer of the cervix is of the adeno variety? Does this influence your treatment? The answers varied from .6 of 1 per cent to 10 per cent, with the exception of one clinic that stated his pathologist called 85 per cent adeno. All except one stated that it did not influence their treatment. That clinic treated adenocarcimona of the cervix exactly as it did adenocarcimona of the fundus; that is by radium followed by complete hysterectomy, to be followed by deep x-ray therapy. That clinic's total five year salvage in all cases seen is 40 per cent. That same clinic stated also that they did a pan-hysterectomy followed by deep x-ray therapy for large fibroids complicating early cancer of the cervix.

The question was asked: What was done for hemorrhage? And practically invariably the answer was packing.

To the question, Do you use radium or x-ray first? Practically all stated x-ray first. They were asked if they always used x-ray in clinical gradings 1 and 2 and the answer was yes with the exception of one clinic. That same clinic uses radium in broken doses before x-ray.

In summary, then: Cancer of the cervix in the larger clinics in the U. S. and Canada is being treated, regardless of the clinical or pathological grading and regardless of complications, in the following manner: First, by deep x-ray therapy which contemplates the giving of from 8,000 to 16,000 "r" through from 4 to 8 portals, front, back and lateral, over a period of from 3 to 6 weeks; Then in a single dose, in the majority of cases, from 5,000 to 10,000 mgm. hours of radium. About one-third of the radium is placed in the uterine cavity from the fundus down and about two-thirds of the radium packed around the cervix in the vagina, the screening being equivalent of at least 1mm. platinum. One clinic is using a much larger dose of radium for a much shorter number of hours of application but the total number of mgm. hours is about the same.

I would like to discuss with you the complications with which we have had to cope. The first is secondary anemia and infection. We believe that this is best treated by repeated transfusions and in some instances we have had to give from 4 to 8 as the x-ray treatments proceeded. We almost invariably put these patients on iron and vitamin B compounds. Probably the nausea which accompanies irradiation is best controlled by thiamin chloride. At times we have to supplement the iron with liver preparations.

The next most serious complication is hemor-

rhage, which frequently depletes in a short time all the efforts we have made to build the patient up. Like those who replied to our questionnaire, we have usually used packing. However, on the suggestion of Dr. Murray Copeland I have recently tried acetone in some four or five cases. The patient is given some form of an anesthetic, generally a small amount of spinal, and put up in a Trendelenberg position. The clots and sloughing tissue are removed and the vagina is filled with straight acetone solution. This is allowed to remain in place for about ten minutes. Then it is carefully swabbed out and the patient returned to bed. We have tried this five times and only one of the patients had a return of her bleeding a short time before her death.

Another complication is the pain in the late stages of the disease. We have tried almost every thing except chordotomy. We have used the spinal injection of alcohol. My present reaction to this is that it should only be used in bed ridden patients. We have had some patients who were unable to walk after its use. I believe there is a definite place for cobra venom provided the patient is not a drug addict before we begin it. It does not cure drug addiction. However, the opiate can be considerably reduced. We usually give .5 cc. the first day; then 1 cc. a day for three or four days. After that it may be cut to every second or third day. When it becomes necessary to use some form of opium, dilaudid is probably preferable, since it does not produce either the nausea or constipation of other opiates. A large number of our patients are clinic patients and economics play a part in relieving their pain. We have found that we can control the pain, in some instances, by combining a quarter of a grain of morphine with ten grains of chloral.

Another complication which we have encountered is pregnancy. If the condition is discovered early we think the pregnancy should be ignored. The patient should be given a full dose of deep x-ray therapy and if an abortion does not occur by the end of the treatment the pregnancy should be terminated and the cervix treated with radium in the usual manner. If it is discovered late, after the viability of the baby is well established, a Caesarean section should be done and as soon as the patient has recovered from her section the usual treatment for cancer of the cervix should be instituted.

Since we began using radium in 1920 we have seen a total of 350 patients with cancer of the cervix, all of whom have been treated with radium in varying doses. In the earlier years we were not using x-ray at all but at the present time practically all of them are being treated with x-ray. Seventy-five per cent of these patients were clinic and about 50 per cent were negroes, naturally a very bad set-up for statistical study. Of the 350 patients 190 of them are known to be dead, 148 lived less than three years. The average length of life from the time we saw them was 10.5 months. Twelve lived more than 3 years and less than 5; eight lived more than five years and died of conditions other than cancer. Fifty-four of the 350 we cannot trace. Of those who died there was no case in which we gave a clinical grade 1. There were fifteen in grade 2, sixty-five in grade 3 and 81 in grade 4, or a total of 80 per cent graded 3 and 4. Twenty-three were not graded. In this group twenty-four developed either a vesico or recto-vaginal fistula or both. This has been a very annoying complication and we did permanent colostomies on four patients who had recto-vaginal fistulas without any vesical leak. We feel that they were made more comfortable for the length of time they lived, by diverting the intestinal contents. Only two of these patients were cured of their cancer, so we feel that the fistula was the result of the cancer and not of the irradiation.

Of the 106 who are now living seventy have been under observation less than three years; 13 from 3 to 5 years; 19 between 5 and 10 years and four more than 10. Of these, 7 are considered grade 1, 31 grade 2, 51 grade 3 and only eight grade 4. Seven are ungraded. In this group, still under observation, only three have developed fistulas. In the entire series there have been only eight cases developing cancer in the vaginal stump. Four of these developed within a year and I think should be considered as having been present at the time of the supravaginal hysterectomy. One, however, occurred 25 years post-operative and the patient had never had a pregnancy. Another occurred 40 years post-operative and that patient had been delivered by Caesarean section followed immediately by a supravaginal hysterectomy.

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We have been unable to prognosticate the likelihood of survival from the pathological grading. Theoretically the highly anaplastic, undifferentiated grade 4 should be much more radio-sensitive and should carry a higher percentage of cures. We know, of course, that the survivals in this grade of tumor are much less than in those tumors considered pathologically grade 1 and 2.

The clinical grading gives us a much better estimate of their life expectancy. We realize that there can be very little salvage in the clinical 3 and 4 types. However, we rarely give the patient's family any encouragement as to the ultimate outcome until we see what the response to irradiation is.

Medical Arts Building.

DISCUSSION

DR. C. J. ANDREWS, Norfolk: Mr. Chairman, like Dr. Rawls and perhaps many of you, I have been interterested in cancer and its treatment for a considerable period of time.

There cannot be any doubt that we are greatly handicapped by the fact that we do not know what cancer is, or what causes it.

It is quite possible that some time some of these unknown things may become known, and we may be far more successful than we are at present. There are many things we do not know about it, and one of these Dr. Rawls alluded to, but he did not make much of it. He says most of his cancer cases are clinic cases. It is a well-known fact that cancer is more prevalent among the indigent and semi-indigent than in the higher brackets.

The statistics as to percentages of cure of cancer is somewhat discouraging but it is evident that a considerable number do get well and stay well. This means that cancer is curable. There is a widespread belief among the laity and, I am sorry to say, among some doctors that no one gets well of cancer, and both use this as an excuse for neglecting early care.

The obstetrician has a wonderful opportunity to prevent cancer by treating the cervix following labor until healed and then impressing upon these patients the necessity of returning to some doctor every year until the menopause has passed.

Dr. Ross, of Duke, has called attention to the relation of indigency and mal-nutrition to toxemia of pregnancy. If it could be shown definitely that cancer is more common among the under-privileged class it would at least suggest a relationship.

Cancer of the fundus of the uterus seems to occur more frequently in fat women. Excessive weight does not necessarily mean that the individual has been correctly nourished but might give suspicion that an endocrine dysfunction might be an associated etiological factor.

So far as the treatment of it is concerned, Dr. Rawls has given you an exceptionally authoritative statement, not only from his own wide experience, but from the clinics of others. I do not believe we can do much better than that.

DR. RAWLS, closing the discussion: I would like to say just one word about the paper of Dr. Hoge yesterday afternoon, a point that he mentioned but did not stress, and that is the question of biopsy. He made a statement that you should be exceedingly careful when you make a biopsy, and my reason for stressing that is this: Four or five times that I can recall, patients have been sent to us for treatment with far advanced carcinoma with the statement of the attending physician that biopsy had been made several months before and that he received a negative report of malignancy, and he took it for granted that the malignancy had developed since he had seen his patient. The malignancy was there, and I suppose he got the biopsy from the wrong site. I think that the biopsy should be most intelligently taken, and I think if possible that the biopsy should be taken through a sufficient area of tissue, if not actually into the normal tissue, so that the pathologist would have an opportunity to compare the grades of his cells and be sure that he interprets it properly. Quite recently a very excellent surgeon called me one day and said he would like for me to see a case that he had, a patient in his office that had a very peculiar looking cervix, and he had taken biopsies from it, made three or four different ones, and they were all reported as negative, and he decided he would destroy the granulation by cautery. When he took the patient in to the hospital they took another biopsy; this was reported as unmistakable carcinoma.

SOME ASPECTS OF SUICIDE*

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Although attempted suicide is generally considered evidence of a severe emotional disturbance, and thus a problem that should concern the psychiatrist primarily, it is a fact that suicidal patients are usually first seen by the practitioners of other branches of medicine. For this reason, a study of the subject of suicide should not be limited to those patients receiving psychiatric treatment in mental hospitals or

*Read at the staff meeting of the Medical College of Virginia, November 13, 1941.

elsewhere, but should also include cases met with in the general practice of medicine. A general hospital, and preferably one to which many emergency cases are brought, is therefore the best place for such a study to begin. On the other hand, the records of such a hospital will naturally be lacking in completeness, from the psychiatric standpoint, for in most instances the patients who have made an attempt are seen only by members of the medical or surgical services, whose interest lies primarily in the management of the physical aspects of the problems presented and not in the investigation and treatment of psychiatric difficulties. Ideally, the management of the suicidal patient brought to the general hospital should include the services of a psychiatrist, and the individual who has made an attempt should not be discharged until a psychiatric examination has been made. This practice has been followed at the Medical College of Virginia Hospitals since the establishment of a psychiatric in-patient service, and was followed to a limited extent before that time. Unfortunately, this practice has been of such limited duration that the findings in these cases cannot be presented here.

It is the purpose of this paper to indicate the magnitude of the problem of suicide in this area, to remove some misconceptions regarding the subject, and to present some of the symptoms that may precede an attempt in the hope that efforts at prevention may be made in the future. The material to be presented is taken from information that is being collected for a larger and more complete study and represents findings from the hospital records for the years 1937, 1938, and 1939. For purposes of comparison, a study of the coroner's records relating to suicidal deaths in the entire city for the same time interval has been made. With few exceptions the patients were residents of Richmond, and those who did not live here came from nearby communities. None were patients in mental hospitals. The figures obtained can give only an idea of the incidence of suicidal attempts in Richmond, for many deaths listed as "accidental" must often be suicidal. Furthermore, it must be remembered that in those cases where the attempt has been unsuccessful, only the figures from the Medical College Hospitals have been obtained, yet we know that many would-be suicides are taken to the other hospitals in the city or treated at home. Even in the records from the Medical College Hospitals, it was often possible to gain information only from reports hastily made out in the Emergency Room for the police, and some cases must have been overlooked.

In spite of the difficulties mentioned, it was found that there were 302 attempts made in the three-year period, with 107 deaths as a result of these attempts. This means that each year there were *100.6* attempts made (approximately 50 per 100,000 population), and *35.7* deaths (approximately 17 per 100,000 population). If it were possible to get accurate figures for the entire city, the figure for the number of attempts would undoubtedly be markedly increased, and the figure for the number of deaths would show some increase, though it would probably not rise in proportion to that for unsuccessful attempts, since the figures given include all cases of suicidal death in the city reported by the coroner, but only those unsuccessful ones reported by the Medical College of Virginia Hospitals. It is fully realized that suicide must be considered merely as a sign or symptom which may occur in a number of different types of emotional disturbance, but surely any "symptom" which results in a mortality rate of approximately 17 per 100,000 is deserving of more serious consideration on the part of the medical profession as a whole than this one receives.

It is of considerable interest to note that the number of known attempts made by negroes appears to be much less than that by white people. The records of St. Philip Hospital, one of the Medical College of Virginia hospitals, have been included in this study, and this hospital receives by far the greater number of colored patients in the city. There is only one other negro hospital here, and it has a smaller capacity than St. Philip. For the entire three-year period the combined coroner's and hospital records show a total of only forty-four attempts made by negroes. This represents 14.5 per cent of the total attempts listed, and since the colored population of Richmond is more than 15 per cent of the total, it would appear that the negro is less prone to suicide than the white. These findings disagree with those of Piker[1] who made a study similar to this one and reported that in Cincinnati the rate of suicidal attempts among negro men was essentially the same as that of white men per 100,000 population and was much greater among negro women than white women. Dr. H. C. Henry (personal communication), formerly superintendent of a mental hospital for negroes, reports that successful suicides were relatively infrequent among the population of that hospital. No seri-

ous suggestion as to the reason for this difference has been offered, and the subject is one which awaits further study.

An analysis of the total figures shows that there were 152 attempts by men and 150 by women, or essentially an equal number of attempts by each sex. However, the results of these attempts show a marked difference, for 81 (53 per cent) of the men succeeded, while only 26 (17 per cent) of the women did. The explanation for this discrepancy in results appears to lie in the choice of methods used, the men selecting the more lethal means (such as gunshot), and the women the less successful (such as various household poisons). An analysis by age and sex is also of interest, for it is found that women are more prone to make attempts before the age of 35, while men show a maximum of attempts after that age. On the other hand, when only the successful attempts are considered, both sexes show the larger number in later decades of life.

In passing, it might be worth while to point out that there has been a gradual rise in the number of *reported* deaths from suicide in Virginia since 1926. It is virtually impossible to say whether this rise is a true one or simply represents an increased accuracy in the reporting of causes of death. For example, so much pressure is brought on the physician by friends and relatives of the deceased when suicide is suspected that one must be inclined to doubt the validity of the figures.

The hospital and coroner's records studied in the preparation of this paper were not sufficiently complete for any real determination of the causes that lay behind the acts. It has long been recognized by psychiatrists that the suicidal attempt is usually the visible manifestation of some deep-seated emotional disturbance, and it is seldom caused entirely by any conscious disappointment or strain experienced by the individual. The patient himself often lacks comprehension of the true motives behind an attempt, and it frequently requires a prolonged period of psychiatric study to bring these motives into consciousness. There are many instances where suicide has occurred with an apparent absence of reasons for the attempt—and it is in such cases that the friends of the patient are most apt to insist that the death was accidental. On the other hand, the patient may have had such emotional tensions brought about by inner conflict over past experiences and behavior that suicide seemed the only way for him to gain relief. Certainly, there is little evidence for the belief that suicide is caused by such vague things as "the strain of modern living," "the depression," "prohibition," "repeal," "the uncertainty of the times," "lack of social security," etc. It is true that our environment has an effect upon us, but there is good evidence that the suicide rate among more primitive people who did not have the "advantage" of such civilized tools as the telephone, the automobile, the bomb, and the machine-gun, was just as high as it is now—and in some instances much higher.

The methods used for attempts can be roughly summarized as poisoning, gunshot wounds, asphyxiation, jumping from a height, stabbing or cutting, and drowning. The favorite method for both sexes was poisoning, but death was produced most frequently by the other methods. Very few women, relatively speaking, made attempts by gunshot or cutting instruments. It would appear that in general the individual tended to use something with which he was familiar, and the seriousness of the attempt could not be gauged by the means. For example, a very large number of women used such common household poisons as bichloride of mercury or lysol—both of which are used commonly for douches. On the other hand, men tended toward the use of the gun or the razor. Tincture of iodine was used largely by both sexes, and there was even one death caused by the ingestion of this relatively innocuous drug.

Some physicians appear to believe that the method used gives an indication of the seriousness of the attempt, but the findings do not bear this out. It must be remembered that the average layman has so little knowledge of pharmacology that he believes many drugs are very toxic, when the facts are otherwise. For example, many lay people believe that aspirin has a toxic effect upon the heart, and, consequently, will attempt suicide by taking ten or fifteen aspirin tablets. The same holds true for tincture of iodine, which is sold in small bottles bearing prominent "poison" labels. As an example, we may take the case of a white woman of 53, with symptoms suggestive of involutional melancholia. She attempted suicide by asphyxiation in July, 1938, but was not sent to the hospital. A month later, she made an attempt by drinking a mixture of various medicines, and again was treated at home. Three weeks after this, she drank four

ounces of lysol, and was treated in the hospital. The family refused to allow her to be committed and she was taken home. For the next few months, nothing was heard from her, but in February, 1930, she was treated in the Emergency Room after having taken 180 grains of aspirin. Ultimately she was committed to a mental hospital. This case is cited to indicate that the patient's lack of knowledge of the action of drugs may lead to suicidal attempts which appear absurd to the physician, and thus may be considered of little significance.

Another false concept frequently expressed about suicide is that most attempts are made solely to gain sympathy, and the individual really does not want to succeed. There can be no doubt that an occasional attempt is made with this idea, but I believe this is the exception. The individual making the attempt for sympathy is much more likely to have such a thought as expressed by the child who says after punishment, "You'll be sorry when I'm dead." In other words, the patient wishes to hurt someone by his own death, and thus is honestly trying to kill himself, even though he is trying to gain sympathy at the same time.

Another false idea is that often heard regarding a successful attempt at suicide, namely, "He's better off dead." This implies that the suicide would have been doomed to a lifetime of insanity if he had not succeeded in his attempt—yet the facts do not bear this out, for the overwhelming majority of cases in this series who failed in the attempt have recovered from the emotional turmoil which brought it on and adjusted again to life. In fact, in a few instances, the attempt appears almost to act as a form of "shock therapy," and brings about a recovery from the mental symptoms.

Regardless of whether or not the patient becomes mentally normal after a suicidal attempt, there is no justification for the immediate adoption of an attitude of pessimism because an attempt has been made. As an example, the case of a young woman who developed a depression, may be quoted. She first attempted to drink tincture of iodine, and since this did not bring about the desired result, she jumped from a high bridge two days later. No injuries of significance were produced, and as she was still depressed she was admitted to a mental hospital. She recovered from her mental illness within two months and is now making a comfortable adjustment at home. Although the planned follow-up of cases in this series has not yet been made, there is good reason to believe that a suicidal attempt is by no means a sign of chronic mental illness, and that if the attempt is prevented, or the patient survives the attempt, the prognosis is not necessarily bad.

Another misconception regarding suicide is that the person who really intends to kill himself never talks about it beforehand, while the one who seeks only to gain sympathy always does. This idea is totally false, and it is relatively rare to find the suicide who has not given some previous indication of his intention. By this I do not mean that a note is left, for it is unusual to find such a note, but rather that the individual indicates his intention in some other way. A study of suicides occurring in a mental hospital[2] showed that in every instance there was a definite warning—often in the form of direct threats—prior to the attempt. The same situation occurs in practice outside of the mental hospital, and every physician should be on the alert for signs of impending suicide in his patients.

Prior to an attempt, a patient usually appears mentally depressed, though this may not always be the case. The depression may be of short duration and may not necessarily seem intense. Very frequently, the individual expresses fear of having contracted some chronic, incurable disease which will bring about a slow and painful death. The reassurance of the physician that this disease is not present is rejected, for the patient believes he is trying to hold back a painful truth. In consequence, an attempt at suicide is made to prevent the expected prolonged suffering. In view of this fact, it is always wise to observe carefully the patient with severe hypochondriacal ideas, especially if the expression of these ideas is accompanied by evidences of agitation.

Another prodromal sign is insomnia—not the occasional inability to sleep that may be found anywhere, but rather a persistent sleeplessness associated with the patient's fear that the loss of sleep will have grave consequences for him. Patients with this type of insomnia often feel that they will become insane if the loss of sleep continues, and death may seem preferable to their conception of insanity. Associated with this state is any condition in which there is persistent inner tension, and a fear of "losing control" over one's actions.

Still another sign is a sense of guilt, with persistent belief in and concern about punishment.

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The patient may never have actually done anything seriously wrong, but if he believes that some past behavior has been unpardonable and that he will be punished for it, suicide may be the means of escape he uses. Such patients often conceal their thoughts from the physician and superficial examination will not be productive.

A history of a previous, half-hearted or serious attempt in a depressed patient often suggests that another attempt will be made. This has already been indicated in the case of the woman who made four attempts, and further discussion of this is not necessary. Incidentally, it might be pointed out that a family history of suicide is not good, not because of heredity particularly, but rather because the individual in a family where suicides have occurred may have a more tolerant attitude toward the subject than others.

Finally, the most frequent sign of an impending attempt is found to be in the patient's own statements. He frequently says such things, as "I wish I were dead," "If there were only some painless way to kill myself, I would do so," or "I wish someone would put me out of my misery." Remarks of this sort are often treated too lightly, and it is frequently very difficult to get members of the family to realize that such a patient is in need of temporary protection from his impulses.

SUMMARY AND CONCLUSION

In this paper, it has been pointed out that in the Richmond area there is a death rate of at least 17 per 100,000 by suicide, and a rate of more than 35 per 100,000 of attempts. Negroes appear to be less prone to suicide than white people. Women make attempts more frequently than men, but have less success. Some of the common misconceptions regarding suicide have been discussed, and some of the evidences of impending suicide have been presented.

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FROM THE COUNTRY SIDE*

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This gathering each year brings us closer to one another in a mutual bond of friendship, loyalty, and admiration—first, in the homage we each pay our benefactor and teacher, whom we all hold dear in our hearts; second, in the new inspirations we gather thus, with scientific facts and theories discussed fully both formally and informally; and, last, the fellowship that it affords radiating the success and splendor of the work done in this institution where most of us were born in our medical and surgical training under a firm guiding hand.

I feel humble, endeavoring to bring to this gathering a scientific message or report that is worthy of its intelligence. However, I shall try to estimate and give each of you a look into the daily thoughts of a rural general practitioner. I might begin by saying that the doctor in a rural community is not only an artificer in the practice of medicine, but also has to appear in roles far from the doors of scientific medicine. One has to be honest and fearless, and must have an unquestionable character; his integrity must be unchallenged. This, too, extends to any man doing anything for his fellow man, his country, and above all for his God. To be a diplomat, a father confessor, a go-between, and in some cases even a politician, is in all essential. We meet those from every walk of life, the rich and the poor, and must be able to give to each the best in us.

The material necessities are usually found in a small yet adequate office with comfortable facilities to care for the sick. I shall not bore you by recalling all the armamentarium that is necessary, as you each know this well. I shall mention a laboratory that is limited usually to routine blood counts and urine and gastric analyses. Some are more fortunate with portable X-ray units, electrocardiographs, diathermies, ultra-violet lamps, and other such things that are very handy to have but are above his means or are impractical for the average man.

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We practitioners have, like the specialists, case histories, limited laboratory examinations, and physical examinations. I will not go farther than to mention these vitally important steps in the practice of medicine. Now let us go farther into the general practitioner's work. It is usually a twenty-four-hour schedule. The coming of night brings fear to one's being. We are apt to be called for any trivial reason. It is important to the ailing patient, no matter how insignificant to the welfare of his future. Office hours are from 9:00 A.M. till 9:00 A.M. One cannot establish any precedent with the uncertainty of sickness or death as to hours of work. We all merrily roll along to the end as best we can. Problems that arise in the rural communities are not, generally speaking, so far different from the ones every specialist meets. Often I have heard that the specialist is a man who knows more and more about less and less; conversely, the general man knows less and less about more and more. I am sure that while in theory this can be true, yet in actual fact it is not so true.

I shall now divide the different specialties from a general man's view. *First,* surgery. The general man who has access to a first-class hospital nearby is very fortunate, and this is usually found in our communities. Our work is referred to men who are doing surgery every day. I have always believed that the combination of general practitioner and surgeon is basically wrong. There are some who do quite well with this set up, but others who fall down badly. In my opinion, unless a man is doing surgery every day and unless his work is surgery, he has no right to do surgery of any import. Here I believe it would be well to say, "To know and be positive of one's limitations in his work is truly a great asset." I do not mean lack of courage or conviction, but the lack of experience in surgery is a great factor in poor surgery. As rural men we can help the surgeon by the careful study of each patient, the early hospitalization of cases of appendicitis, and the recognition of all acute abdominal emergencies. I can see no excuse for delay in getting any surgical condition to a hospital. I would much rather have a dozen questionable appendices removed than have one that was ruptured. The early investigation of digestive symptoms by X-ray would lessen the incidence of cancer of the stomach and large bowel that reach the surgeon byond all hope of recovery. The same is true of the careful investigation of all breast tumors, eroded cervices, the casual non-healing lip sore, and by all means the recognition of importance of rectal examinations.

Surgery to the average general man is limited to very minor work and simple fractures. These latter should all be X-rayed regardless of how simple the fracture is. However, even the most simple of minor surgical work is ofttimes accompanied by danger. This should be reckoned with and strict aseptic precaution taken in all instances. The cauterization of a non-prepared cervix is inexcusable, but is done every day. The suture of dirty wounds done without debridement and adequate anti-tetanic serum administration is an error that happens too often. So, in resume of the surgical side of general practice, I say, "Know your limitations. Do a careful history and physical, and avail yourself of as much laboratory data as possible. Hospitalize early all major cases. Use intelligence in handling all minor conditions with aseptic precaution, and recognize the need of A. T. S. administration. Do these things, and you will greatly enhance the value of the general man to the surgeon."

Second, medicine. The general man finds a more open field to do his own work, relying on the internist for more technical and special knowledge. The referring of patients is usually for X-ray work, electrocardiography, and special work as in allergy and bacteriology. Otherwise, except for the demand of very definite specialization, the rural man can do all of his own work. The advent of the sulfonamide group for chemotherapy has opened the doors of treatment to the physician in the rural areas. Pneumonia has been handled with far greater efficiency with a lowering of mortality rates far byond anyone's expectation. The typing of pneumonias by the Neufeld method is practical and easily done by the rural man. This, of course, brings up the use of serum for the various types of pneumonias. Frankly, I have not used serum since the advent of sulfathiazole and sulfapyridine. This is due to two factors: First, the serum is entirely too expensive for the usual clientele of a rural community; second, the availability of different type serum in the nearest drug store is problematical.

The results so far obtained in my practice lead me to believe that chemotherapy is more practical and is more beneficial as a general thing. We usually see pneumonia late, and serum is not as efficacious then as when given earlier. In the past two years

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I have treated 123 cases of lobar and bronchopneumonia, with two deaths, one having an ensuing empyema of streptococcic origin, the other with kidney complications and a type 3 pneumonia. So, practically speaking, chemotherapy has been a great thing to me in my cases of pneumonia. Heart cases are managed very well at home up to certain points. When an oxygen tent is necessary, or when extensive laboratory work or cardiography is indicated, then hospitalization is essential. Even then necessity may lead us to do the best we can at home, when hospitalization is impossible.

I would like to mention for a few moments coronary occlusion. This situation comes to the general man in many roles, such as acute indigestion, gallbladder colic, acute pancreatitis, and arachnidism. This diagnosis can be made in most instances if the attack is typical. The early history may present symptoms of fatigability, a tired feeling in the legs, insomnia, vertigo, gastric distress, hallucinations of sight and smell, substernal discomfort and breathlessness, the last being probably the most important. Coronary occlusion may and does occur under almost any circumstances, whether the patient is resting, working, or playing. The onset is contrary to the usual onset of angina pectoris. The latter is nearly always precipitated by effort or exertion either emotional or physical. There are to my mind immediate and delayed signs and symptoms of coronary occlusion. The first usually include pain, heart failure syndrome, shock and collapse, and, of course, quite often sudden death. Pain may be missing, but if present, is usually a vice-like pressure in the lower sternal or epigastric region. It may be diffuse and may spread to any part of the chest, arms, neck or head.

The lower sternum is the usual site of onset, and the pain of angina is more in the precordial area. Much pain is usually attended by a bordering collapse. The patient is anxious, weak, and sweating. Usually a cyanosis and pallor prevail, giving a light blue ashen color which is almost characteristic of the disease. The pulse is thin and thready, the blood pressure is lowered with all the signs of shock present. Later signs, if the patient survives the first few hours, are leucocytosis, fever, occasionally a friction rub, and embolism. Fever is low—up to 102 F. White cells vary from 10,000 to 25,000. When the pericardium is involved, a friction rub is present, usually appearing on the second or third day. It is transient or lasting, and may be important in diagnosis of doubtful cases. Embolic processes may be evident in the kidney, spleen, cerebral and pulmonary systems. Rupture of the heart is due to a weakened myocardium, and occurs rarely before the fifth day or after five weeks.

Coronary occlusion pain is usually rhythmical and periodical. This syndrome is helpful in ruling out other conditions. There is a striking similarity of the pain with those of labor pains. The course of pains is of some prognostic value. Pains which are short in interval and long in duration, as in the last stages of labor, are of grave nature. Those long in interval and short in duration, and of weaker character, as in uterine inertia, give a better outlook.

In my opinion the early diagnosis of coronary occlusion and its treatment is one of the greatest importance. I give my patients the following instructions:

1. Rest one hour after meals, relax and try to sleep.
2. Do not over-exert to the point of fatigue.
3. Avoid sexual excesses.
4. Eat plainly, small meals, avoiding foods with high cholesterol content.
5. Eat slowly, avoiding extremes in hot and cold drinks.
6. Avoid effervescent medicines.
7. Do not walk fast up hill or stairs or against the wind.
8. Avoid constipation and straining.
9. Avoid worry, hurry, and quarrels.

Rest, morphine for pain, adrenalin and coramine for shock and collapse, judicious use of oxygen therapy for breathlessness, are all essentially the important drugs of choice. Theobromine derivatives in combination with phenobarbital are of value in early or suspicious cases.

Digestive tract disturbances, after full laboratory data is obtained, can usually be handled at home with some degree of satisfaction. Diets necessary in diabetes must be rigidly watched and frequent blood sugars done to maintain reasonable safety. Tuberculosis is being handled through the state sanatoria, with the help of Public Health Service clinics, where fluoroscopy is done on all suspects the general man finds. All school children as well as their teachers are given tuberculin tests. We are isolating T. B. cases in Birch Cottages when the

ever-crowded sanatoria cannot accommodate them.

Another condition that calls for a great deal of careful study is that of arachnidism. In the past four years I have had at least a dozen cases of spider bites by the Black Widow specie. The bite of the Black Widow presents at times a difficult case for diagnosis unless a very energetic history is taken. I can recall one case in which there was certain evidence of a ruptured peptic ulcer that cleared up when I finally wormed out the fact that, while in an outdoor privy that morning, the patient felt a stinging sensation while at stool. This led to the correct diagnosis. The treatment in my opinion is the use of morphine in adequate dosage, calcium gluconate intravenously and intramuscularly, fluids, and hot tub baths. I allow a patient to stay in hot water for hours, as it has relieved the majority of the cases that I have seen. I am sure that in instances of a bite on the upper extremities coronary occlusion might be thought of until the history of a sting or bite was obtained. Prevention of arachnidism can be helped by having sanitary privies in the rural communities and educating the people as to the eradication of the Black Widow. In our rural communities this is a real problem and one that might lead to disastrous operations unless a careful history is taken. All in all, the general practitioner is more able to take care of the usual cases of internal medicine at home and in his office than surgical patients.

Third, perhaps pediatric conditions are our greatest problem, along with obstetrical care. The sick child calls for treatment not only of the child but of his parents as well. Feeding problems are always difficult and far too numerous to go into, with the exception of mentioning that in my community lactic acid evaporated milk is a boon to the situation. Vitamin therapy is essential, beginning not later than the first month. Preventive medicine plays a great part in immunization of children against typhoid, diphtheria, pertussis, tetanus and smallpox. Several years ago in my county of twenty thousand people, eighteen thousand were vaccinated for diphtheria and typhoid fever. This is a great record and was done by the eight physicians residing there. Diarrheas and dysentery, appearing in the spring and summer, are the most difficult and frequent problems confronting us. This is usually a feeding problem or an infection secondary to feeding. It is also seen in the company of parenteral infections such as tonsillitis, otitis media, mastoiditis, and malaria. The treatment in most of my cases has been routine starvation for forty-eight hours with the exception of fruit juices, and Ringer's solution by mouth. Sulfathiazole is given, grains one to one and one-half per pound of body weight per day. The eradication of infections and the management of reasonable feeding problems are essential.

A very important thing in my opinion is the feeding of Ringer's solution by mouth. This is prepared by prescribing a twenty-five times the normal concentration of Ringer's solution, directing the mother to put two and a half tablespoonfuls to a quart of boiled water, adding a tablespoonful of sugar or a coca-cola to disguise the taste. You will be astounded at the amount that a desperately ill child will take when it will take nothing else at all. This replenishment of the electrolytes of the blood and tissues of the elements lost in diarrheas and vomiting is life saving. Of course, parenteral fluids are necessary at times. Here Ringer's solution in saftiflasks under the skin or intravenously is advantageous. Solution of sodium lactate of 1/6 molar strength is efficacious in the treatment of acidosis in children. Blood transfusions are necessary and easily given in the office or home. With sulfathiazole, Ringer's solution, and blood transfusions, the problem of diarrheas has been greatly simplified in the past two years. Sulfathiazole is used because of its low toxicity and less frequent reactions. The use of vitamin K orally to the mother, intravenously or intramuscularly to the baby, has cut early blood dyscrasias and intracranial hemorrhage in the new born.

In otitis media of children I am certain there are very many different schools of treatment. I see a great many cases. I find that in my hands sulfathiazole used early, nose drops to produce postnasal shrinkage and drainage, auralgan or 3 per cent phenol in glycerin as ear drops, aid in aborting this condition. I believe in myringotomy when the drum is definitely bulging with the short process obliterated—not before. I am sure the incidence of mastoidectomy is cut down by the use of the sulfonamides. Drooping of the posterior superior canal wall, prolonged purulent drainage, and continued high fever are indications for X-ray of mastoid process. Involvement requires surgery. Some authorities believe in letting the drum rupture spon-

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taneously. I would not let a localized abscess elsewhere do so, and certainly not here, where pressure might spread the infection into the mastoid cells. Some advocate the use of X-ray therapy in treating the low grade mastoid infections. I cannot comment on this at this time, as I have not seen this done in enough cases. I am certain that the above method of treatment has proven successful in my hands.

Fourth. In obstetrical practice which is apparently always increased in a war period, there is much to say and it cannot all be done here. However, I might say the normal case depends greatly on stringent pre-natal care. This is being emphasized in North Carolina at the present time by Maternal and Infancy Clinics held over the entire state. Important in this are personal and family history, past and present, a careful physical examination with pelvic measurements, laboratory work often. Blood pressure readings and weight chart are essential monthly in the first trimester, bi-weekly in the second trimester, weekly in the last trimester. Dietary discretion is emphasized early; vitamins A, D and K with calcium are advisable. The normal delivery under aseptic precautions is not necessary to dwell on. Operatively, low forceps, episiotomy, versions and extractions are ever presenting themselves. For the most part through necessity, a great number are done at home. These are problems that at times get out of our hands. Then hospitalization is necessary. I wish all women could have the benefit of a hospital at this time. I have recently been using sulfathiazole powder in the incision on all episiotomies, of which I do a great many on primiparae. Then repair by suture gets good results.

Exhaustive papers could be written on this, but as time is limited I only wish to speak hurriedly on these things. Eclampsia and toxemias are handled best in hospitals though I have had to handle them at home many times. The prime thing is the prevention of these with adequate pre-natal care. Miscarriages and premature births are handled as conservatively as possible, and sent to the hospital. The greatest menace to the mother and child other than toxemias, hemorrhage, and infections is the midwife. The only way to redeem this is by educational methods in rural communities. So much for the obstetrical problems as seen by the general practitioner.

These preceding facts are far from the entire story. I shall dismiss the problems of genito-urinary patients with these few words. The treatment of these patients in the office and home is usually limited to mild or moderately severe infections such as pyelitis, gonorrhea, cystitis, and prostatitis. Here, too, the sulfonamides have been a great help. Ureteral stones, blocked kidneys from ureteral strictures, kinks and the stases seen in pregnancy are hospital cases. I have done cystoscopic work in the office, but feel that X-ray is necessary, and I send my cases to the hospital.

The problem of education of patients is a vast one. In North Carolina today Maternal and Infancy Clinics are held monthly, Venereal Disease Clinics weekly, vaccination for the prevention of typhoid, diphtheria, and smallpox every year. Federal authorities are sending cattle inspectors to stamp out Bang's disease and tuberculosis in cows. Midwife clinics are being held to try to raise their standards and slowly weed out the "granny". Child health, maternal health, and venereal disease control are playing a great part in helping the rural physician.

In closing this resume, I trust that I have mentioned a few of the things that confront those of us who live in rural areas. We are dependent on the specialist, and, in turn, the specialist depends on us. One without the other would result in a state of chaos. Each has his place in the forwarding of medicine.

As to the financial gain of the rural man, there is a comfortable living to be found—some good years, some bad. All are taken in stride. Farm products such as poultry, eggs, vegetables, and hams are used as payment when money is scarce. Then, last, but not least, there is the pay of a mother's eyes when her baby is brought back from the clutches of death, the smile of a suffering child when relieved. In short, when his work is done honestly and well, I am sure that there is no touch so near to that of God's hands as those of this man. He is loved and held dear to the thousands of hearts that come to him from the country side.

OBESITY—CAUSE, HANDICAP, AND TREAMENT—A REVIEW

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Obesity is a condition in which there is an abnormal deposit of fat due in most cases to the ingestion of food beyond the caloric needs of the individual. The condition is widespread, does not receive the serious attention it deserves, is the cause of much disability, and in the vast majority of cases is preventable.

Prevalence.—There exists in the mind of the laity, and apparently among the majority of the medical profession, a misconception regarding obesity. It is generally accepted without question that a certain rather large proportion of humans are destined by fate to become fat, and that there is nothing which can be done about it. These people invariably insist that they are not heavy eaters. They point out that all their family become fat, and that they stay that way regardless of what they eat. Consequently, they make no effort to diet, or make only a half-hearted effort, which they abandon upon the slightest excuse.

Handicap.—It is in this group who consider themselves as inevitable victims destined by fate to become obese, that we see the expanded waist-lines, the sagging jowls and double and triple chins, the over-flowing drooping structures artificially confined by cleverly designed contrivances, the short of breath, panting, puffing people who have become pitiful parodies of what nature designed them to be. Casual observation will convince the most skeptical, but the designers of clothes for both sexes are so clever at concealing the true state of affairs, that the bare, bald, alarming truth can only be properly appreciated at a well-frequented bathing beach. As the weight increases and fatty tissues over-flow beyond the bound of even the best of artificial controls, these poor self-deluded people become self-conscious, and are then the object and victims of extensive advertising campaigns. Open any newspaper or magazine and you will see on every side offers of products to lighten the lot of the obese. The corsetiere, the girdle manufacturer, the uplifter, the contour imitator, the beautician, the chin strap, the hip reducer, the calf and thigh reducer, the exercise machine, the clever designer, all offer their services, guaranteeing to regain or preserve the maiden form or youthful silhouette. Salts, packs, baths, tablets, wafers, salves, and massage, all assure reduction without effort. Relief is promised for the sour stomach, the acid indigestion, the sluggish liver, the torpid bilious state, the constipation, the lack of energy, the sluggish feeling which the overstoked engine has developed. And by this time the poor, over-stuffed lard skin has lost all confidence and all hope, so he tries them all, to avoid the disagreeable necessity of self-denial at the dining table.

Standards.—Obesity is so frequent as to be almost the rule, but is not normal. Insurance mortality tables have long proven the advantage of being slightly over-weight during youth, but slightly underweight later. The standard tables for weight, based on age and height, are merely averages and, since they include large numbers of the obese, are overloaded. Ward gives the rough rule for calculation of normal weight as 110 lbs. in the male (the female 10 lbs. less) for 5 ft. of height, with the addition of 5½ lbs. for each inch above 5 ft., and also details an over-weight index arrived at by dividing the actual weight by the ideal weight. He charts the index as 1 plus up to 1.25, 2 plus from 1.25 to 1.50, 3 plus from 1.50 to 1.75, and 4 plus over 1.75, and states that the 3 and 4 plus categories should always be reduced. Evans states that there should be a gradual reduction of weight after age 35, averaging about ¼ lb. per year, since after this age there is a wasting of muscle mass, and maintenance of weight is due to adiposity. He allows 10 lbs. for the bony framework, depending upon the individual build. It is so well known, as to be almost axiomatic, that the average individual begins to put on weight in the late twenties, and continues to gain through the 3rd and 4th decades. Evans says the next great public health advance should be the control of these abnormal metabolic states.

Dangers.—There was a time when corpulence was a mark of honor; when obesity indicated prosperity. The mean, the sly, the tricky, treacherous, grasping character was portrayed as the lean and hungry type, while the jolly, sunny, happy, successful man was stately and portly. That tends to be the general idea at present, and combined with it is the humorous characterization of the fat man. Someone said there are three stages of obesity, the stately, the comical, and the pitiful. Generally absent from lay

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thinking is the truth that the obese individual has become so because of the lack of self-control, and that there are very definite dangers and disabilities which result from obesity. Life insurance statistics prove the shortened life expectancy, but, as Evans states, the markedly increased disability from circulatory, metabolic, and endocrine disorders among the obese, is of infinitely more importance than the shorter life span. The greater incidence of diabetes (Joslin "most important single factor"), circulatory diseases (2½ times as great among the obese), cardio-renal states, and biliary disease, are well known; likewise, the justifiable reluctance of the surgeon to operate on the obese because of the poor operative risk and greater incidence of infection. The frequency of arthritis and fibrositis, which often become disabling and result from strain imposed by the excess weight is noteworthy. The metabolic disturbances described by Musser and Wright of the vicious circle of obesity, hypertension and hyperglycemia, which is corrected by dietary reduction, returns if the weight is regained. Endocrine disturbances, according to Wilder, more frequently are caused by the obesity than the reverse. The earlier onset of the degenerative diseases, the embarrassment and humiliation, and the resulting inferiority state and involuntary isolation which obesity frequently produces, are more serious than is implied by the laughing remark, "nobody loves a fat man." The previously quoted classification of obesity into the three stages of stately, comical, and pitiful, might more accurately be stated as treacherous, dangerous, and calamitous.

Causes.—What causes obesity? There is, and can be, but the one cause—over-eating. Food taken into the body is utilized as a source of energy, and for tissue building or repair. That portion not needed for those purposes is stored as fat. Excessive alimentation results in the accumulation of fat; undernutrition results in loss of weight. There are no exceptions, though the process is influenced by hereditary factors and endocrine balance. The lowered metabolic balance of the hypothyroid patient results in the deposit of fat only when that patient receives more food than his reduced energy requirements demand. The descendant of fat forebears himself becomes fat because he continues the tradition of excessive consumption of rich and high caloric foods. If his diet is reduced he loses weight.

Hunger vs. Appetite.—Hunger and appetite are not synonymous terms though they are frequently interchanged. They are the bodily sensations which lead to the intake of food. Hunger is felt as a dull ache or gnawing sensation referred to the lower sternal and epigastric areas, is caused by periodic contractions of the empty stomach, only begins after the stomach has been empty for sometime, occurs when the sugar content of the circulating blood falls about 25 per cent, and may be abolished by the first few mouthfuls of food. Appetite is related to previous sensations of taste and smell of food, has important psychic elements in its composition, and implies wishing, longing or yearning for something desirable. The person influenced by appetite is tempted, he seeks satisfaction and wishes to renew previous pleasures. Hunger is a primitive elemental sensation imperiously demanding relief and may be readily abolished by food, while appetite still calls. The sensation of satiety, of fullness, of having had enough is the control, but fails to operate, or operate soon enough, in the obese. The discomfort of the obese patient on a reducing regimen is rarely due to true hunger sensations, but it is rather the dissatisfaction of a person accustomed to having his desires and wishes fulfilled who suddenly meets denial.

Classification.—There are various classifications of obesity. The simplest and most frequently used is to divide obesity into types as either exogenous, or endogenous. The exogenous supposedly representing those who over-stoke the engine with food, and the endogenous presumably representing that group who store fat regardless of the food intake, because of some innate metabolic or endocrine disorder. The intake of food is a function of the body which is not entirely automatic but is influenced by free choice and habits, and is affected by numerous exogenous and endogenous factors. Generally publications on obesity stress more the faults in energy expenditure or metabolic anomalies than errors of the food intake. Food is often mentioned only as a seemingly minor factor, as compared with the underlying endogenous disturbance, diagnosed as endocrine dysfunction. Such publications give the impression that their authors consider obesity as a condition in which the law of conservation of energy does not hold true. The concept of obesity as either endogenous or exogenous is based on the conception that the energy requirements, and oxidative processes, of an obese are different from those of a normal person. Newburgh and Johnson conclusively demonstrated that

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the energy exchange in obesity is normal, and that under-nutrition in the obese produces exactly the anticipated loss of weight that occurs in the normal person. They conclude that all obesity is simple obesity, namely, due "to excessive inflow of energy to the body". Beardwood classifies obesity as due to—

1. Exogenous—hyperalimentation
2. Endogenous
   a. Endocrinopathy
      1. Thyroid
      2. Pituitary
      3. Adrenal
      4. Gonad
   b. Nervous
   c. Defective water metabolism
   d. Defective salt metabolism

The exogenous is demonstrated by the symmetrical distribution of the fat, chiefly under the skin, in the omentum, the mesentery, retroperitoneum, and, if extreme, may infiltrate all organs of the body. The endogenous type refers to metabolic disturbances associated with endocrinopathy and presents the clinical picture of localized fat about the supraclavicular spaces, the neck pads, the breasts, abdomen, waist, ankles, and the hip girdle. The endogenous may be associated with undeveloped genitalia, castration, amenorrhea, menopause, hypothyroidism, known pathology of the pituitary, and is also associated with pathology involving nerve centers in the diencephalon which is generally of greater importance than is the pituitary.

Unquestionably the vast majority of fat people are so because of the purely exogenous factor of excessive eating. The avenue to obesity is through the mouth, quoting Spriggs, who says, "nearly every person who is over-weight reaches that condition because of over-eating and under-exercise". No abnormalities of energy metabolism can be demonstrated in the obese; the resorption from the alimentary tract is not different from that of the normal person, and under-nurition results regularly in a predictable loss of weight. An excessively large and poorly balanced diet, with a preponderance of starchy carbohydrates, was invariably found by careful checking. The statements of patients regarding their food intake, while made in good faith, are notoriously unreliable. Kirch found that only 15 per cent of the obese patients acknowledged over-eating, while 13 per cent described their food intake as small, though detailed records of their food consumption disclosed a 24-hour caloric intake of from 2,900 to 3,500 calories, and when a group were put to bed on a diet 200 calories in excess of their basal requirements practically all complained that the diet did not satisfy their appetite. In the pediatric literature, obesity among children has been largely classified as of endogenous origin, but in contradiction the authors have stressed the necessity and efficacy of dietary restriction in treatment. When careful food histories are obtained, children, as well as adults, are found to eat excessively. Frequently failing reduction on a prescribed diet, loss of weight proceeded normally when the same diet was given under controlled conditions in the hospital. The intake of obese children not only was found excessive in quantity, but one-sided and poorly balanced, and frequently the caloric value of the food taken between meals exceeded that taken at meals.

It is maintained that what is originally an exogenous obesity may become endogenous by throwing excess burden on organs or glands controlling the oxidative processes.

There is a group who are obese and who definitely demonstrate disturbances in the endocrine function. That group discloses the typically abnormal distribution of fat, and gives a history of menstrual and other disorders. It is a small group in which metabolic balance and oxidative processes are at a low level. The much larger group are those less clearly endocrine in origin, but in whom the question of endocrine dysfunction arises. The thyroid is the organ most frequently implicated followed by the pituitary. Lauter, after investigation of the various components of energy expenditure, the basal metabolism, specific dynamic action of food, and oxygen consumption during physical exercise, observed that the caloric output of an obese person is equal to or even surpasses that of a normal person and concludes invariably that the positive metabolic balance, as expressed in fat accumulation, results from an intake of food in excess of bodily requirements. He found that patients suffering from endocrine forms of obesity consume amazing quantities of food, exactly as do patients with obesity due to causes other than endocrine dysfunction. Bulgar, Dunlap, and Lyon concluded that the thyroid plays a lesser role than once suspected, found only a small per cent of obesity due to hyperthyroidism, and stated that even though endocrine dyscrasias may play an important role, the fact re-

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mains that excess weight must represent an intake of food beyond body requirements. Short and Johnson note the marked increase in total metabolism and moderate increase in basal metabolism in the obese. Accompanying that fact is the usually increased resting pulse rate which indicates to them an increased thyroid (metabolic?) activity in the obese, which favors a rapid loss of weight on dietary restriction. They conclude that the employment of metabolic stimulants, while normal basal and high total metabolic rates prevail, is illogical and contraindicated. Evans states that the basal metabolic rate though apparently low, is actually increased, because of the increased surface area and oxygen consumption and that the endocrine system governs the distribution of fat but the cause of endocrine obesity is over-eating. Spriggs found B. M. R. of 49 per cent of obese patients normal, 36 per cent above normal, and only 15 per cent reduced below normal, when calculated on the basis of ideal rather than actual weight and surface area. He considers the stored fat negative tissue.

The obesity influenced by those endogenous factors classified as nervous, like other nervous conditions, may be divided into the organic and the functional. Lesses and Myerson state that obesity may result from defects of the appetite regulating mechanism, especially that control factor of satiety or satisfaction. Metabolic abnormalities may be represented by the two extremes of the bulimia of hyperthyroidism, and the anorexia of Addison's disease. Diseases of the central nervous system, as cause of increased appetite, are illustrated by cases of brain tumor, and functional examples are those Kirch described as being due to a "diencephalon weakness" in which desire for food persists in spite of the ingestion of adequate quantities. Rennie states that obese individuals are frequently attempting to obtain surcease from the worries and stress of life in the enjoyment of their food. Myerson termed this "restless seeking for stimulation which may find its outlet in frequent eating" as "anhedonia," and concludes that the syndrome of anhedonia may be associated with neurosis and advises a psychotherapeutic approach. These patients present personality factors productive of states of tension, anxiety, and depression which may result in considerable increase of weight during the period of personality upset. Fatigue of the neurasthenic type may be a frequent symptom. These people get relief in periods of emotional excess by nibbling food; they use the food as a comfort in combating unpleasant circumstances. Hockman states that compulsive eating is part of a defense mechanism for combating anxiety. Conrad stated that such refusal of food or excessive or specific demand was an expression of the personal need and emotional maturation of the individual. Alexander said the wish to be fed was, in the subconscious, identical with the wish to be taken care of, to be helped, and to be loved. Wilder expressed the opinion that simple obesity may be due to functional derangements of the same centers which are involved in organic lesions. Homburg counted obesity among the habit disorders.

Examination.—Treatment should not be undertaken without a thorough study of the patient, which includes careful history especially into the dietary habits of the patient and his family. Complete physical examination should note especially fat distribution, condition of the skin, shape of the hands and feet, and state of the cardio-circulatory system. Laboratory examinations include presence of anemia, condition of the kidneys, basal metabolic rate, and frequently a glucose tolerance test.

Treatment.—When all has been said about the cause of obesity, whether endogenous or exogenous, whether endocrine or nervous, the fact remains that the human engine has no safety valve to blow off when fuel is shoveled in faster than the energy can be utilized. Consequently, when the intake of food exceeds the output of energy, fat is deposited. That fact simplifies the matter of treatment which essentially consists of a reversal of the process. Undernutrition produces a definite and predictable loss of weight in the obese, whether the factor of an endogenous element is present or not.

The diet should consist of approximately 1 gm. protein per kilo. of ideal, not actually attained weight, from ¾ to one gm. carbohydrate to each gm. protein and less than 25 gm. fat, in the 24-hour peroid. The carbohydrates should be of the 5 or 10 per cent variety to provide bulk, the proteins should be the complete proteins of milk, eggs, cheese, and meat, and the vitamin requirements should be taken care of by use of fish liver oil concentrates and yeast. Little or no fluid should be taken with the meal, but water, especially carbonated water (Evans), between meals assists in allaying the hunger which is experienced at first. Alcohol must be prohibited, as must the highly seasoned condiments

because of their appetite stimulating effect. Salt should be restricted.

Consistent adherence to such a diet will soon produce the desired weight reduction. At first there may be some water retention, giving a false sense of weight maintenance, and also at first the patient may complain of weakness, which feeling is soon replaced by one of well-being. After the desired weight level is reached the patient must continue on a diet which will maintain weight at the desired figure.

What of the other factors so frequently used in efforts at weight reduction?

Exercise is desirable, and should be used but carefully graded to the age, physical state, and cardio-circulatory condition of the patient. Evans states that reduction by exercise alone is impractical on account of the time required and the usually impaired condition of the circulation and the joints of the obese.

Drugs are of three general types—those used to correct the endocrine dysfunction, those used to stimulate the metabolic and oxidative processes, and certain drugs at times beneficial in correcting the mental state of the patient. Thyroid extract is the drug most frequently used, and functions both in correction of the endocrine disorder of hypothyroidism and of stimulating metabolism. It should be used when there are definite evidences of hypothyroidism and sparingly when diet and controlled exercise fail or the reducing process is slowed up. The dose should be small and gradually increased, watching the effect, and using the smallest effective dose. Clear cut pituitary obesity is rare. Mild cases are probably common, but treatment with the various pituitary preparations is unsatisfactory. Ovarian preparations should be used in appropriate cases. The suggestion that lowered oxygen carrying capacity of the blood in anemia results in slowing of the bodily oxidative processes, illustrated by the increased obesity (92 per cent) among women, who average lower hemoglobin percentages than men, brings forward the interesting point that correction of the anemia by administration of iron may be helpful in treatment of obesity in women. Dinitrophenol, by the stimulation of metabolism, will reduce weight. It has been extensively used, and harmful results are infrequent, but in my opinion such a potentially harmful drug has no place in the treatment of obesity. Benzedrine sulfate, by relieving some measure of depression and fatigue, relaxing gastro-intestinal spasm, and improving the state of mind, affects the urge to eat as a means of filling out the empty existence of patients of the type referred to by Myerson. Similar results have been reported by Greene with belladonna and phenobarbital or bromides. Psychotherapy, with intelligent assistance to the patient in solving his problem, is essential to get him to cooperate in dieting.

STANDARD DIET SUITABLE FOR CONTROL OF UNCOMPLICATED OBESITY
(Modified from Evans)

	Grammes of			
Breakfast	Carbohy.	Prot.	Fat	Calories
Tea with 2½ oz. milk (5 tablespoons)	4	2½	3	53
1 egg	–	6	5	69
1 rasher of bacon	–	5	15	155
2 unsweetened biscuits	12	–	–	48
Butter ¼ oz. (size of half walnut)	–	–	6	54
Dinner				
Meat 2½ oz. (large portion)	–	25	5	145
Green vegetables, a large portion	5	–	–	20
1 unsweetened biscuit	6	–	–	24
1 orange, apple or pear	10	–	–	40
Tea with 1 oz. milk	2	1	1	21
Tea				
Tea with 2½ oz. milk	4	2½	3	53
2 unsweetened biscuits	12	–	–	48
Butter ¼ oz. (size of ½ walnut)	–	–	6	54
Tomato with little cress or lettuce	1	–	–	4
Supper				
Meat or cheese 2 oz. (fair portion) or fish 6 oz. (large portion)	–	20	4	116
Salad, lettuce, cucumber, tomato, etc. or 1 portion of fruit	5	–	–	20
1 unsweetened biscuit	6	–	–	24
Butter ¼ oz. (size of ½ walnut)	–	–	6	54
	67	62	54	1,002

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CONCLUSIONS

1. Ultimately all obesity is simple obesity, namely, due to the intake of food beyond the caloric needs of the individual. Endocrine factors, when present, determine the distribution of the fat, but over-eating is the cause.

2. Obesity is a disabling and dangerous state which is entirely preventable.

3. Treament must be directed toward a reversal of the causative factor, over-eating, and under-nutrition consistently adhered to results in a definite and predictable loss of weight in the obese.

4. Drugs, and glandular products, should occupy only a minor place in the treatment of obesity, and then used only as adjuncts to the main factor which is consistent, controlled reduction of the caloric intake.

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SYPHILIS OF THE LUNG: REPORT OF THREE CASES

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The total number of cases of syphilis of the lung is small, but enough have come to necropsy and diagnosis to call attention to the fact that it is one of the possibilities to be considered in chronic pulmonary disease.[1] Clinical manifestations are not distinctive, and it is impossible to determine from symptoms, physical signs, and laboratory studies whether or not the condition is present. At necropsy, although certain characteristics of the lesions are accepted as typical, the pathology is not definitely established, as is evidenced by the difference of opinion among writers on the subject.[2] The following cases are reported because the diagnostic criteria appear to be sufficiently fulfilled in each instance to warrant classification as syphilis of the lung.

Case 1. A white married woman, 61 years of age, was admitted to the hospital in 1922, at which time she complained of frequency of urination, weakness, slight edema of the ankles, poor appetite, constipation, and moderate loss of weight. She had been married twenty-seven years and had had one miscarriage but no children. She appeared ill and had a temperature of 104 degrees, a pulse rate of 100, and respiration 24. The liver was palpable and there was tenderness over the urinary bladder. Urinalysis disclosed "few" to "abundant" pus cells on various occasions, and blood count showed leukocytosis of 10,000 to 11,000. The blood Wassermann reaction was negative. Cystoscopy revealed slight cystitis and impairment of function of the left kidney. The fever gradually subsided, and the patient was discharged from the hospital.

Her second admission was on November 12, 1936, when she was 75 years of age, and her chief complaint was hemoptysis. She had had generalized weakness and dyspnea for three years; for one year she had had chronic cough, frequently productive of bloodstained sputum and on several occasions frank hemorrhage. Hemoptysis had increased nine days previous to admission, and two or three moderately severe hemorrhages had occurred. According to her niece, the patient had coughed up three "basins full" of blood about six hours before admission to the hospital. She continued to complain of poor appetite, constipation, loss of weight for four or five years, dysuria, and frequency of urination.

The temperature was 98.6 degrees, the pulse rate 92, and respiration 22, with a blood pressure of 146 systolic and 70 diastolic. The patient was propped up in bed and coughed up a moderate amount of blood and mucus. She was somewhat deaf. Wasting of the pectoral muscles and an inspiratory lag on the right side were observed. Percussion note was diminished on the right from the mid-axillary line posteriorly, below the level of the seventh thoracic vertebra, and over the left apex. Rales were present at the left apex and both bases.

Laboratory studies included urinalysis which was negative except for albumin, grade I. Blood count showed 70 per cent hemoglobin (Sahli), 3,860,000 erythrocytes, and 14,800 leukocytes with normal differential count. The non-protein nitrogen content of the blood was 37 mg. per cent; estimation of the blood sugar was 94, cholesterol 134, and total protein 5.8 mg. per cent with albumin 3.4 and globulin 2.4. The Kline test was negative.

Roentgenogram of the thorax revealed density in the middle and lower portions of the right lung, suggestive of bronchogenic carcinoma, and an old tuberculous lesion in the left apex. A compression fracture of the eighth dorsal vertebra with slight rarefaction was also noted, which was interpreted as being due to metastatic carcinoma, but from the niece we learned that the patient had fallen and injured her back thirteen years previously. She continued to have cough with expectoration of a small amount of bright red blood until on November 15, 1936, when she had a sudden, massive, pulmonary hemorrhage and expired.

Autopsy—On the surface of the right lung were

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many old fibrous pleural adhesions. The cut surface of the upper lobe was reddish-gray in color, and there were several dark red areas of hemorrhage up to 2 cm. in diameter with margins merging into the surrounding parenchyma. In the middle lobe were large caseous masses of yellow friable material with the central portions containing sanguino-purulent material, and with grayish-yellow peripheral portions of rubber-like consistency in which there was a moderate amount of anthracotic pigment. Dense grayish-white retracting bands enclosed the entire lobe. The right middle lobe bronchus was filled with sanguino-purulent material, and there was a fistula between the bronchus and an adjacent artery. The bronchial walls in the entire lobe were clearly delineated, and the mucous membrane was not appreciably infiltrated. Cut section of the lower lobe was reddish-gray in color. Many nodules up to 2 mm. in diameter were scattered about, especially in the lower portion along the periphery; they were grayish in color, firm in consistency, and slightly raised above the surrounding surface. The lower lobe bronchi were filled with blood, and the walls and mucous membrane were thickened. The hilar lymphatic nodes were enlarged, of firm consistency, very dark in color, and friable.

The left lung was reddish-gray with black mottling, especially at the apex, and there were numerous fibrous adhesions and much scarring. The upper lobe was moderately contracted, deeply pigmented, and firm in consistency. The bronchi were moderately dilated and thick-walled and contained yellow mucopurulent material. In the lower portion of the upper lobe there were six nodules varying in size from 1 to 2 cm., grayish in color with some anthracosis and a firm, homogeneous, rubber-like consistency. In the lower lobe were three nodules., 0.6 cm. in diameter, well circumscribed, firm, and yellowish-gray in color with anthracotic pigment around the periphery (Fig. 1a).

Microscopic Examination—The majority of the sections showed frequent confluent areas of necrosis in which the outlines of the architecture of the parenchymal structures were preserved (Fig. 1b). Faint alveolar outlines were seen, and the walls of the vessels could be identified, especially by elastic tissue stain. Within parts of the necrotic zones were nuclear fragments, dense, round-cell infiltrations, and fibrous tissue proliferation. The elastic fibers were preserved in all structures. In other areas the vessels were preserved and engorged, and some contained hyalin thrombi. The necrotic zones were surrounded by non-necrotic granulation tissue, much of which consisted of fibroblasts, inflammatory cells with a predominance of lymphocytes, and multiple nodular foci made up of epithelioid and giant cells, indistinguishable from tubercles.

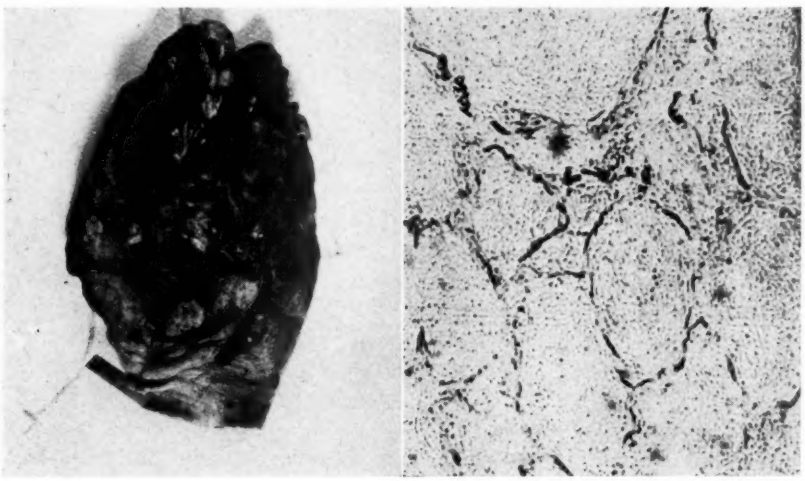


Fig. 1a.—Photograph of gross specimen. b.—Photomicrograph, elastic tissue stain; shadowy outlines of alveolar structures remaining in area of necrosis.

Fibrous connective tissue surrounded the tubercles. Peripheral to them there was diffuse fibrosis and organizing pneumonia of non-specific type, with interstitial infiltrations in the remainder of the lung tissue in the affected portions. The lumina of many small arteries and veins were either occluded or greatly diminished in size by infiltration in their walls of lymphocytes, plasma cells, and granulation tissue.

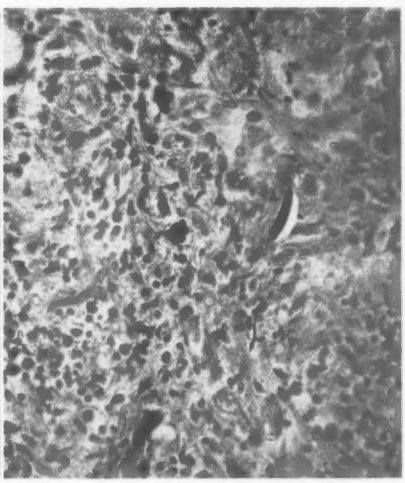
Other pathologic findings in this case were atherosclerosis and calcification of the aorta, arteriosclerosis, and scarring of the kidneys. Tubercle bacilli were not demonstrated in the lesions by accepted staining technic.

Case 2. There is no clinical record of this patient, a 54-year-old colored man. The lesions in the lung were discovered at autopsy which was ordered by the coroner, and other findings were a massive, cerebral hemorrhage into the left basal ganglion, malignant nephrosclerosis, cardiac hypertrophy, arteriosclerosis, and syphilitic myocarditis (miliary gummata).

Autopsy—The lungs externally appeared normal except for the lower lobe on the left side. On its surface were several, medium-sized, retracted areas and multiple nodules of varying size with a firm, elastic consistency. On section there were many nodules with irregular edges, slightly raised above the surrounding parenchyma, and with a firm, rubbery consistency generally, although the centers were less firm than the outer portions. The margins were a pale, reddish-gray color, with darker centers. The largest of these nodules, measuring 4.5 x 3.0 cm., was adjacent to a bronchus, and beyond its location the bronchus was markedly dilated. The walls of the bronchi near other of these foci were moderately thickened with the mucous membrane intact. Smaller nodules were distributed along the courses of dilated bronchi, extending to the periphery of the lobes, but not directly involving the pleura. Hilar structures were normal (Fig. 2a).

Microscopic Examination—There was diffuse, infiltrating, granulation tissue which occupied the lumina of alveoli and walls of alveoli, arteries, veins, bronchi, and bronchioles, as well as an occasional lumen of a blood vessel or bronchiole. There was diffuse, round-cell infiltration of the interstitial tissue surrounding the areas where granulation tissue was present; most of the round cells were lymphocytes, but plasma cells were also abundant (Fig. 2b). The granulation tissue and the round-cell infiltration in most places occurred together; in other areas there was gradual transition from one to the other. The granulation tissue was composed of irregularly arranged fibroblasts, epithelioid cells, and numerous multinucleated giant cells, round cells, and capillaries which were often filled with red blood cells. The essential architectural outlines of the original structures, such as alveolar walls, vessels, bronchi, and bronchioles were preserved throughout

Fig. 2a.—Photograph of gross specimen.



b. — Photomicrograph, granulation tissue, small round— and plasma cells in alveoli.

all areas where granulation tissue or interstitial infiltration was present, even in the small areas of necrosis in the granulation tissue. This fact was demonstrated clearly by elastic tissue stain. The elastic lamellae and muscle fibers of arteries, but more especially of veins, were separated by granulation tissue which partially destroyed and interrupted continuity of the elastic fibers. Occasionally the lumen itself was invaded and partially or completely occluded by granulation tissue, but more frequently the lumen was narrowed by infiltration of the wall. Round cells and multinucleated giant cells were numerous in the walls, and proliferative intimal change was occasionally seen. A similar type of infiltration was found in bronchial and bronchiolar walls.

ish-gray, shiny exudate and debris. The wall appeared to be made up of infiltrated, grayish, lung parenchyma, and the cavity communicated with a bronchus. Adjacent to the cavity were many irregular, opaque, nodular areas, dull gray in color. They were fairly well circumscribed and surrounded by a zone of anthracotic pigment. Bronchial walls and mucous membrane were normal, and yellowish-gray exudate was present in the lumina. Scattered throughout the lower lobe of the left lung were numerous nodular areas of infiltration. There was no calcification of any of the nodules, nor were there any small cavities.

Microscopic Examination—Large areas of necrosis, irregular in size and shape, were noted, in which the architecture of the alveoli was preserved.

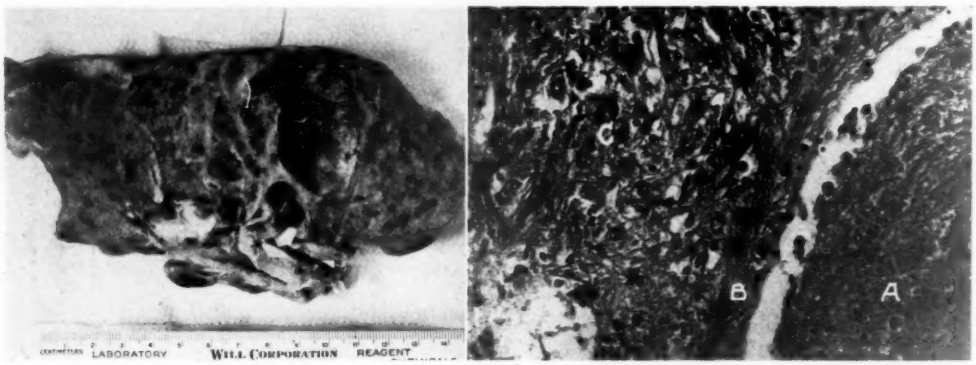


Fig. 3a.—Photograph of gross specimen.

b.—Photomicrograph, wall of blood vessel involved by granulation tissue and inflammatory reaction; thrombus in blood vessel; A-thrombus, B-blood vessel wall, C-granulation tissue.

Case 3. There is no clinical record of this patient, a colored woman, 30 years of age, whose autopsy was ordered by the coroner. In addition to lesions in the lungs, the findings included syphilitic aortitis with superimposed verrucous endocarditis, narrowing of the orifices of the coronary arteries, diffuse myocardial scarring, focal interstitial infiltration of the kidneys, and anemic infarct of the left kidney.

Autopsy—The left lung appeared to be irregularly consolidated throughout and covered with fibrinous exudate. On sectioning the lung, a cavity 8 cm. in diameter was found in the anterolateral portion of the upper lobe (Fig. 3a). This cavity was separated from the pleural cavity by a zone of firm, gray tissue, 0.5 cm. in thickness. Its inner surface was ragged and covered with yellow-

The alveoli in these areas were filled with pinkish, fibrillary and granular debris and many nuclear fragments. Peripherally to them was granulation tissue made up of fibroblasts, some of which radiated outward from the center of the necrotic areas in palisade formation, with infiltration of small round cells. Numerous smaller areas of necrosis were present, either isolated or near large necrotic areas. They had a central necrotic zone in which the outline of the alveolar walls was preserved, with partially necrosed granulation tissue in the alveoli. These zones were surrounded by epithelioid cells, and multinucleated giant cells were frequent. Throughout the sections the alveolar walls were diffusely involved. Between the capillaries and the alveolar basement membrane there was dense infiltration of round and plasma cells, lymphocytes,

large mononuclear and occasionally polymorphonuclear cells, as well as some fibroblastic or granulation tissue. The lumina of the alveoli were often filled with finely granular precipitated material, large foamy mononuclear cells and polymorphonuclears, or organizing pneumonia, non-specific in character except for occasional multinucleated giant cells. Much carbon pigment was present. Foci of necrosis often encroached upon bronchial walls. Larger bronchi were filled with debris, apparently from the necrotic processes. Vascular lesions were prominent (Fig. 3b). There was proliferation of the loosely arranged and edematous subendothelial elements, in which fibroblasts made a network so that the endothelium was elevated, and the lumina of the vessels were narrowed. There was also dense infiltration by plasma cells and lymphocytes, much less frequently in the media than in the adventitia.

COMMENT

Certain distinctive pathologic features were noted in each of the three cases. In the presence of severe involvement of large areas, the process did not spread to other areas of the lungs, as would be expected in tuberculosis, the condition from which it is most difficult to differentiate syphilis of the lung. The affected portions of the lungs had a rubbery, elastic consistency and calcification was absent. Distinctive histologic features were peculiar destruction of parenchymal tissue in which outlines of architecture were preserved (especially elastic fibers), granulation tissue at the periphery of the zones of necrosis in which fibroblasts were in palisade arrangement, giant cells, and marked infiltration of the walls of blood vessels and bronchi. Absence of tubercles in the lung tissue surrounding the destroyed areas was additional evidence against tuberculosis. Gummata were present in the myocardium in *Case 2*. Negative blood Wassermann reaction, as in *Case 1*, has been noted previously in cases of syphilis of the lungs.[3]

SUMMARY

Three cases are presented which appear to meet the criteria for syphilis of the lung.

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EMPYEMA IN THE NEWBORN—
A Case Report

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The purpose of this report is to place on record an unusual case which was seen at the University of Virginia Hospital. This is a case of bilateral empyema which was present at birth and confirmed by post-mortem examination. In a partial review of the medical literature and textbooks no similar case was encountered.

Case No. 133230: This newborn infant was admitted to the University of Virginia Hospital by birth. The pregnancy history of the mother was negative except for the slightest degree of nausea and vomiting in the first trimester. Two days before this patient went into labor her membranes spontaneously ruptured. The mother was admitted to this Hospital in good labor with the cervix being about three fingers dilated. She was delivered after a sixteen-hour labor of a living male child. The baby was in poor condition after birth, requiring vigorous resuscitative measures for about fifteen or twenty minutes. On admission to the nursery the child was still in poor condition, his temperature being 99.8° and his respirations were fast and shallow. There was an expiratory grunt present.

Physical examination on admission revealed a slightly cyanotic infant weighing 2780 grams with fast grunting respirations and looking in poor condition. There was slight over-riding of the cranial

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bones but the fontanel felt normal. Reflexes were all hypo-active. Examination of the chest could not be done satisfactorily because of the very poor condition of the patient. However, respirations were short and rather distant with many rhonchi heard throughout both sides of the chest. There was slight decrease in percussion resonance in both sides of the chest posteriorly and laterally but more marked on the left side. The heart was fast and irregular but the sounds were strong.

The patient was put in constant oxygen and food and fluid were withheld for about twenty hours at which time water was given by gavage. The patient vomited everything taken by mouth and his temperature during this time ranged from 98 to 105.2. His condition gradually became weaker and he died twenty-six hours after birth.

Post-mortem examination was performed and the findings were as follows:

Body: The body was that of a newborn white male, 48 cm. in length. There were no congenital abnormalities or defects. The nose was normal and presented no abnormalities. No teeth were present and the gums and tongue were unremarkable. The neck and thorax were symmetrical and well developed. The umbilical stump was about 1.5 cm. long and dry, was ligated in two places. The external genitalia was normal and the testicles were descended. The extremities were well formed, and no palpable lymph glands were present.

On opening the abdomen there was a small amount of fluid in the peritoneal cavity which was clear straw colored. The surfaces were smooth and glistening. The intestines were not distended and lay together with the other viscera in their normal relation. The liver was enlarged, right lobe extending down below the costal margin 4 cm. in anterior axillary line.

On opening the thorax, the thymus extended down to almost the pericardial sac from the neck and measured 3 x 2.5 x 1.5 cm., and weighed 5 grams, was distinctly lobulated and resembled a piece of whitish fat. In each pleural cavity there was about 5 to 7 cc. of thin purulent yellow fluid. The pleura had lost its shiny appearance and was rather dull; stretching from the lung to the chest wall were thin hair-like strands of whitish fibrin. The lungs appeared dark red color and seemed only partly expanded. Cultures of the fluid were taken. The pericardial sac contained no fluid and its surfaces smooth and shining.

Heart: Normal.

Aorta: Normal.

Lungs: Left weighed 30 gm. and right 40 gm. Both lungs were dark red in color and were not as well aerated as normal. The pleural surface of upper left lobe had a thin deposit of yellowish fibrin which was more marked on the anterior surface, and between the upper and lower lobes there was a much thicker deposit of fibrin. On section of the lung, there seemed to be areas of consolidation, especially in the lower lobe, although nothing definite could be made out. The tissue was dark red and very firm. The right lung also contained a thin deposit of fibrin on its pleural surface, although it was not as thick as on the left. On section it resembled the left with the parenchyma deep reddish with scattered areas of what appeared to be consolidation. This was questionable, however.

Trachea: Normal.
Adrenals: Normal.
Kidneys: Normal.
Ureters and Bladder: Normal.
Liver: Normal.
Gall Bladder: Normal.
Gastro-Intestinal Tract: Normal.
Spleen: Normal.
Pancreas: Normal.
Brain and Spinal Cord: Not done.
Microscopic—

Heart: No changes noted.

Aorta: No changes noted.

Lung: Marked confluent lobular pneumonia. Marked engorgement of pulmonary vessels. On the pleura is an acute fibrinous exudate with many polymorphs present. The parietal pleura shows marked reaction with fibrin-polymorphs in the exudate.

Liver: Marked cloudy swelling. Extra-medullary blood formation was widespread.

Gall Bladder: Partial autolysis of mucosa.

Pancreas: No changes noted.

Spleen: The pulp contains much blood. The malpighian bodies have active germinal centers, slight extra meduallary blood formation.

Adrenals: No changes other than post-mortem, noted.

Kidneys: Cloudy swelling of the tubules. Small hemorrhage in pelvis of the right kidney.

G. I. Tract: Cardia and pylorus showed no changes. Gastric mucosa is normal in appearance.

Bacteriology: The specimen of fluid taken from both pleural cavities was cultured and contained Type I pneumonococci.

Comment: It is unfortunate that intrauterine and vaginal cultures were not obtained on the mother of this patient. However, except for the history of spontaneous rupture of the membranes two days prior to delivery, the pregnancy, labor, and post-partum course were normal. The highest fever the mother had was 100.2° on the second post-partum day.

The fact that fibrin and organization of exudate

were present on post-mortem examination, twenty-six hours after birth, is indicative of an intra-uterine pneumonia.

Summary: A case of bilateral empyema present at birth is reported with complete post-mortem findings.

TREATMENT OF PERIPHERAL VASCULAR DISEASE*

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The differential diagnosis of peripheral vascular disease is not difficult and was fully outlined by several essayists during the past year. Therefore, my discussion tonight will apply chiefly to our present concepts of therapy in the most important occlusive vascular diseases, such as arteriosclerosis obliterans and thrombo-angiitis obliterans.

The trend toward conservatism in handling these diseases is evident in the closer cooperation between the internist and the surgeon. It is obvious that at times a conservative attitude must be abandoned in favor of radical surgery, especially in the presence of gangrene, with ascending infection and toxicity. Recently Allen[1] has advised freezing of the affected limb as a pre-operative measure, and Meleney[2] has had success in limiting the spread of infection, especially in the presence of anaerobic organisms, by the application of zinc peroxide paste.

There are several mechanical devices on the market that are being extensively used in the treatment of occlusive peripheral vascular disease. The paevex boot is a glass boot connected to a motor-driven apparatus, by which an inclosed limb may be subjected to alternate suction and pressure. Usually the suction is at a negative pressure of 80 and a positive pressure of 20. The cycle is 10 seconds for negative and 5 seconds for positive pressure. The extremities may be kept in these boots for several hours. The object is to stimulate the flow of blood into and from the extremities. Naturally, if the involved area is above the level of the cuff of the boot, good results will not be obtained. The boot should never be used in the presence of an acute or subacute inflammatory process. During the past five years we have followed many cases treated in the boot and most of our success has been in cases of frost-bite and an occasional acute embolism or arteriosclerosis.

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*Presented at October, 1941, Staff Meeting of the Medical College of Virginia.

"Reactive hyperemia" is a well known phenomenon. Many years ago Bier[3] studied this reaction and developed therapeutic procedures based on the principle that obstruction and then release of the circulation would produce a marked circulatory increase and that this would be beneficial in certain pathological states. Lewis and Grant[4] published instructive studies of this condition as it occurs, both after arterial and venous obstruction, with release of the obstruction. It seems that when you obstruct the circulation to a part, and then release the obstruction, there is a bright flush of the skin. Many theories have been advanced to explain this hyperemia, but the exact mechanism by which it takes place has been difficult to determine and apparently it involves many complex extracellular and intracellular chemical problems. Collins and Wilensky[5] have recently re-emphasized the principles expressed by Bier in 1905, and have developed an "intermittent venous hyperemia machine", which is capable of reproducing a cycle of obstruction and release by means of cuffs applied to the extremities. A cycle of two minute obstruction with one minute release at a pressure of 25 to 80 mm. of mercury has been recommended. The inventors of this apparatus are very enthusiastic, but critical observers, such as Wright,[6] Veal and McCord,[7] Allen and McKechnie,[8] have not obtained the expected results.

The vas-oscillating bed of Sanders is a motorized oscillating bed which has been used in a number of clinics. By means of this bed the head and feet of the patient are alternately elevated and lowered, a complete cycle taking from one to three minutes. This procedure may be continued indefinitely, even through the sleeping hours. The degree of tilting and the speed of the cycle can be regulated within reasonable limits. The object is to exercise the arteries which are still able to function, as with the Buerger exercises, but continuously and without fatigue to the patient. There are no constricting bands and the process appears theoretically sound. The

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only disadvantage is that the bed costs about three hundred dollars and therefore is out of reach of the average patient in his home or a hospital with limited funds. It would seem that this apparatus is fundamentally sound and should be widely accepted as an adjunct in the treatment of peripheral vascular disease.

There are many other therapeutic methods not requiring any mechanical apparatus. Prophylactic care of the extremities is extremely important. Constant cleansing, immediate attention to minor abrasions, proper wearing apparel, are all very essential. Although the controversy still rages as to whether tobacco is a causative factor in thrombo-angiitis obliterans, most clinicians agree that tobacco in any form is harmful to individuals suffering from peripheral vascular disease. Although spasm of the sclerotic vessels is not considered important, it must be remembered that the life of tissues frequently depends on the collateral vessels; these are usually not sclerotic and may be constricted by the use of tobacco. Therefore, patients with definitely impaired circulation from peripheral vascular disease should completely abstain from the use of tobacco.

The action of alcohol on the peripheral vascular tree is definitely vasodilating. The ingestion of one to one and one-half ounces of whiskey has been shown by experiments to increase the temperature of the extremities nine to twelve degrees Fahrenheit, depending in part on the condition of the vessels and the control of the temperature prior to the experiments (Wright[6]). So, there is general agreement in most of the peripheral vascular clinics that alcohol is an ideal drug in the treatment of these occlusive diseases. Obviously one must be careful of its use in the presence of severe diabetes or liver damage. Besides its vasodilating action, alcohol also has a narcotizing influence which may control the pain at times better than morphine. We advise one to one and one-half ounces of whiskey three times a day to the majority of our bed patients.

The problem of heat in the treatment of peripheral vascular disease is of great importance and it is felt that, in the past, many cases with advanced disease have been done more harm than good by improper heat applications. Controlled, continuous, hot, wet soaks are of great value when an open infected lesion is present, but unfortunately the wet dressings are applied too hot and very soon become cold even with constant changing of the dressings. If the dressings do become cold, the circulation, which is already impaired, is even lessened rather than increased. Temperature controlled soaks, by the use of thermostatic devices, would be ideal, but these devices are not usually found in the average hospital. Our procedure is to order warm soaks to the affected limb for a period of fifteen minutes, three or four times a day, following which the limb is dried and wrapped in heavy wads of cotton. In addition, a heat pad is applied to the abdomen for thirty to sixty minutes twice a day, with the idea that reflex heat stimulation will be produced to the lower extremities. If direct heat in the form of a light cradle is used, occasionally gangrenous lesions will spread, as the heat cannot be controlled. We are not in favor of diathermy, short-wave, or infra-red rays, unless they are applied to the trunk to produce reflex vasodilatation.

Many drugs have been used and are being used in the treatment of these disorders. The fact that there are so many indicates that probably only a few have any definite value. We have not been impressed with the results in the use of hypertonic saline solutions, although they are highly advocated by Silbert and Samuels. The use of sodium citrate, Ringer's solution, and insulin have been given up in most of the larger clinics. Of the vasodilating drugs, the current favorite happens to be papaverine hydrochloride; it has been advocated especially in cases of acute embolism or thrombosis, ¼ to ½ gr., intravenously, every four hours. We do not believe that the xanthine derivatives or nitrites have any permanent value. Wright[6] is very enthusiastic with the results obtained by the use of Depropanex; this is a deproteinated pancreatic tissue extract. The mechanism of the action of pancreatic tissue extracts has never been satisfactorily explained. Apparently their antagonistic action to epinephrin has suggested a vasodilating factor. It is also suggested that deposition of cholesterol in experimental animals is markedly retarded by the use of pancreatic tissue extracts. We have had very little experience with these tissue extracts but expect to use them in the future.

This is the era of vitamins, so naturally they have been accepted as being useful in the treatment of peripheral vascular disorders. Several of the vitamin B complex factors are considered of value, the ideal one at present being nicotinic acid in 50 mgm. doses, three times a day. Although subjective symptoms, such as flushing, a sensation of warmth, and

sweating, occur after oral administration of nicotinic acid, no one has demonstrated increase in peripheral blood flow following its use (Spies, Bear, and Stone[9]). Nevertheless, we feel that this preparation must have a vasodilating action and are using it in most of our cases.

Typhoid vaccine is still considered of great value, especially in the treatment of Buerger's disease. It probably is not as satisfactory and not without danger in elderly arteriosclerotics. The action of typhoid vaccine is probably dependent purely on the vasodilatation of the collateral vessels supplying the limb. One must be careful in the use of the vaccine in order to prevent severe reactions. The procedure used is as follows: The first dose is 25,000,000 organisms injected intravenously; injections are given every three days, providing the effect of the preceding dose has completely worn off. The object is to obtain a rise in temperature of two to three degrees without a chill. If 25,000,000 organisms do not cause a reaction, the dose is increased gradually until an effective dose is found. We feel that the use of typhoid vaccine is one of the better methods of treatment, especially in thromboangiitis obliterans.

When there is evidence of marked vasospasm, symptoms have been relieved by procaine and alcohol injections of the lumbar sympathetic nerve trunks. Unfortunately, the injection of alcohol has caused severe neuritis in an occasional case. Some observers feel that, rather than hazard this complication, lumbar sympathectomy should be performed. It would seem logical to discontinue alcohol injections and in a given case of vasospasm to try procaine block first. If the affected limb shows a definite increase in skin temperature with other objective phenomena signifying release of vasospasm, then sympathectomy should be performed. Occasionally a patient may have peripheral vascular occlusion associated with vasospasm and procaine sympathetic blocks may prevent this individual from developing gangrene.

In summary, it is obvious that there are many methods of treating peripheral vascular disorders. We feel that one should not be too dogmatic in praising the efficacy of any single method of treatment. The conservative attitude would be to accept those preparations and methods that have proven successful in the larger clinics, using all of them, if necessary, in an individual case. A cooperative spirit between the nurse, physician, and surgeon, will certainly prevent many of the distressing complications we have seen in peripheral vascular disorders.

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SELECTED CASE REPORT OF MATERNAL DEATH

MATERNAL HEALTH COMMITTEE
MEDICAL SOCIETY VIRGINIA

The patient, a white 37-year-old multipara with five previous pregnancies, was first seen by a physician when eight and one-half months pregnant because there had been some bleeding, although the amount of blood loss was small. As well as one can tell from the information before the committee no diagnosis was made, no treatment instituted, or advice given. Bleeding continued in small amounts at intervals for two weeks, at which time profuse bleeding associated with slight abdominal pain began. A vaginal examination in the home revealed a central placenta previa and the patient was de-

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livered immediately by version and extraction. The baby was stillborn. The placenta was expressed without difficulty, and no abnormal postpartum bleeding occurred. The patient died one hour and forty minutes after delivery, apparently from blood loss combined with shock from the delivery.

COMMENT

This case has been classified as a preventable obstetrical death, because of the absence of prenatal care and because of the failure to employ one of the generally approved methods for the treatment of placenta previa. Placenta previa is one of the most serious complications of pregnancy, and unless facilities for its treatment are available in the home, such as transfusions of blood and plasma, they should be referred to hospitals for treatment. It has been well said that the "when" in the treatment of placenta previa is more important that the "how". Placenta previa often gives only slight vaginal bleeding at first, which will later be followed by severe hemorrhage. The time to establish the diagnosis and to institute treatment is at the time of the first bleeding. In the case under consideration two weeks elapsed between the onset of bleeding and the final profuse hemorrhage, two weeks in which the life of the individual could have been saved.

At the time of the first visit the patient should have been referred to a hospital with facilities for the diagnosis and treatment of placenta previa. The diagnosis can be established by x-ray pictures using either a technique for visualization of soft tissue detail or by an x-ray picture with the bladder distended by an opaque material. An appreciable space between the bladder outline and the fetal head is indicative of placenta previa. If x-ray facilities are not available for these procedures, the diagnosis can be established by a sterile vaginal examination. *But* this should only be done when facilities are available for immediate treatment, as the examination itself may start an uncontrollable hemorrhage.

In any event the patient should have been typed and cross matched and blood available before the sterile vaginal examination was done. After the diagnosis is established then a choice must be made between vaginal and abdominal delivery. Each patient should be individualized and the choice of delivery determined with due regard for the condition of the cervix, the presence or absence of labor, the parity of the patient and the size and viability of the child. Many are inclining more and more toward abdominal delivery in placenta previa, particularly in the central varieties, if the child is viable. If delivery is to be accomplished through the vagina, the simplest method to employ is rupture of the membranes if possible and scalp traction. Braxton Hicks version or Voorhees bags may be used as a method of tamponading the lower segment while awaiting cervical dilatation, but in no case should the child be pulled through the cervix until the cervix has dilated sufficiently to permit its passage. Accouchement forcé which was apparently used in the case under consideration, should practically never be employed, especially in the treatment of placenta previa. Fluids, whole blood, and plasma should be administered as indicated, and should always be immediately available before delivery is attempted.

Because of the failure to establish the diagnosis and to institute treatment during the two weeks which elapsed before the fatal hemorrhage, and because of the failure to employ an approved method of treatment it is felt that the case under consideration should be classified as preventable.

Mental Hygiene Activities

The Mental Hygiene Society of Virginia—Its Purpose and Program, Past, Present and Future*

The Mental Hygiene Society of Virginia was formally organized as such on February 19, 1937. For thirty-seven years prior to this, however, Mental Hygiene had played a large part in any Virginia Social Welfare program. This had to be so because it was Dr. William F. Drewry, that incomparable mental hospital administrator and mental hygienist, who played the leading role in founding the original Virginia Conference of Charities and Corrections in 1900, which is now known as the Virginia Conference of Social Work. The ever growing influence of this great psychiatrist continued as a vital, living factor until the year 1934 when he passed away.

The cause of mental hygiene grew to such proportions and assumed such importance in the Virginia Conference until by 1937 it seemed advisable to organize a separate and independent Society. In the early part of 1936 appropriate committees were

*Read before the Social Action Section of the Virginia Conference of Social Work at Richmond, Virginia, April 24, 1942.

appointed to study the whole matter. It was on February 19, 1937, the organization meeting was held, and Dr. Beverley R. Tucker, of Richmond, was elected as its first president.

The Society has continued its cooperation with the Conference of Social Work and the Mental Hygiene Society section has been one of the features of each annual meeting.

The Society was organized for the following purposes:

1. Promoting a general recognition of the true nature and the established causes of mental disease and mental defect.
2. Advancing the methods of treatment and prevention.
3. Rationalizing and humanizing the public attitude towards mental disease and hospitalization.
4. Securing suitable legislation.
5. Working concurrently with Federal, State, Local, and Private agencies in matters relating to mental health. .

The Society has never lost sight of these objectives, and slowly but surely, notable advances have been made. Advantage has been taken of every opportunity to preach and teach mental hygiene to the people of Virginia. In addition to the well-attended and helpful meetings each year with the Conference of Social Work, many other public meetings have been held, all of which have proven interesting and instructive. Special mention should be made of those in Danville, Norfolk, Roanoke and Richmond. Others which were outstanding were those held in connection with the American Association for the Advancement of Science in December, 1938, the American Psychiatric Association in May, 1940, and the Institute of Public Affairs at the University of Virginia in July, 1941.

The annual meetings of the Society have been instructive and helpful. In addition to all of this, the individual psychiatrist and others have contributed abundantly of their thought, time and money, in giving talks here and there to small groups of interested people.

The Society has always advocated better organization and more adequate treatment standards in State mental institutions. Much has been accomplished along this line.

It sponsored the cause of establishing psychiatric wards in the two State medical schools and hospitals. This, too, has been fully realized.

The matter of bringing the general public to a better understanding of mental disease and defect and rationalizing their attitudes toward mental institutions has been another major objective. It is believed that in this respect more has been accomplished in the last five years than in the previous fifty.

All of this and much more truly forms the foundation for the future work of the Society. All of this must be continued and to it must be added a few more very important items:

1. Do whatever may be possible towards keeping the mentally unfit out of the armed forces and plan for the rehabilitation of those who will return as mental casualties.
2. Plan for and help organize a comprehensive, community-sponsored, State-supervised system of mental hygiene clinics.
3. Advocate a revision of the commitment laws and procedures so that mental patients may go to State hospitals without being arrested and kept in jail like a criminal.
4. Advocate and urge that psychiatric education and training be more general in schools of medicine, nursing, and the social sciences.

When nearly 12,000 Virginia citizens occupy more than 50 per cent of all the hospital beds in the State and more than 3,000 persons are going to Virginia mental institutions each year, it can be readily understood that the Society is indeed laboring in a field fruited with vast opportunities and possibilities.

At the moment and possibly for the next several years, the services of the Society will be in great demand in the defense and war effort; especially, as it may be able to help in the elimination of the mentally unfit from the armed services and to rehabilitate those who will return as mental casualties. The building of civilian morale will also be of the greatest importance both in war and for the peace which will follow.

The Mental Hygiene Society of Virginia is in existence because physicians, social workers, teachers, preachers, nurses and laymen felt that by the pooling of their resources much could be accomplished toward helping a greater number of people to be healthier and happier in body, mind and spirit.

FRANK H. REDWOOD, M.D.,

President.

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Public Health Statistics

I. C. RIGGIN, M.D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for March, 1942, compared with the same month in 1941 and for the period of January through March, 1942, compared with the same period in 1941 follows:

	MAR. 1942	MAR. 1941	JAN.-MAR. 1942	JAN.-MAR. 1941
Typhoid and Paratyphoid	4	15	42	33
Diarrhea and Dysentery	69	55	293	140
Measles	998	9,797	2,378	13,979
Scarlet Fever	142	228	492	593
Diphtheria	41	49	157	123
Poliomyelitis	1	2	1	6
Meningitis	22	10	53	24
Undulant Fever	5	0	7	3
Rocky Mountain Spotted Fever	0	0	1	1
Tularaemia	4	2	18	15

IMMUNIZATION, A WAR NECESSITY

The responsibility for preventing and controlling disease in the armed forces rests upon the medical services in the respective branches. These men effectively guard the health of the Army, Navy, Marine Corps and Coast Guard.

On the other hand, the private physicians must maintain, and, if possible, increase the health of those not in the armed forces. Disease in the civilian population takes a tremendous toll of physicians' hours and of available hospital beds. Moreover, the prevalence and spread of disease among civilians imposes an added risk upon the personnel of the armed services and upon the industrial workers. Although the men in the latter group are employed in work differing from that ordinarily engaged in, pathogenic bacteria do not play favorites. Indeed, disease appears more frequently in industrial groups of all kinds than among any other class of persons because of the increased exposure.

It is the patriotic duty of physicians to use the practical and proven procedures in immunization against smallpox, diphtheria and typhoid. These three prophylactic measures should be stressed energetically by all practicing physicians as well as by public health officials.

In addition, an increasing volume of experimental and clinical evidence would seem to justify vaccination against whooping cough. While this relatively new immunization procedure, for obvious reasons, has not been incorporated into the public health program, it can very well be added to the routine immunization programs as carried out by pediatricians and private physicians.

Miscellaneous

Blood Collections for Army, Navy Reported at Increasing Rate.

With 30,477 blood donations being reported for the first two weeks in March by Red Cross chapters maintaining donor centers, the program for supplying blood plasma to the armed forces has entered its second year of operation with an excellent start. Inaugurated in February, 1941, at the request of the Surgeons General of the Army and Navy, this project has expanded as rapidly as laboratory facilities to process plasma have become available. Donor centers are now operating in 18 cities.

Shortly after beginning of the project the Red Cross was requested to deliver 215,000 units of plasma by July, 1942. Following Pearl Harbor this figure was upped by 165,000 units, bringing the total number to be delivered by July, 1942, to 380,000. For the year beginning July 1, 1942, the Army and Navy have requested the Red Cross to obtain an additional 550,000 units, making a minimum total of 930,000 units. To provide this total will require somewhat in excess of 1,000,000 donors, it is estimated.

According to a report covering the first year of operation issued by Dr. G. Canby Robinson, national director of the Red Cross Blood Donor Service, by the end of November, 1941, the Red Cross blood donor centers then participating in the program had collected and delivered to processing laboratories a total of 27,352 donations. Then came Pearl Harbor and the opening of additional donor centers. Immediately after, enrollment of donors jumped by leaps and bounds. Whereas in the ten prior months 27,000 blood donations had been given, the number of donations during December was 18,396! In January this figure was doubled, 37,109 donations being made. Collections in February, the shortest month in the year, totaled 53,780, and with the first two weeks in March reporting at a monthly rate of approximately 65,000, there is every prospect that the goals that have been set will be reached. However, the present rate of donations will have to be

maintained without let-up, and may even have to be increased further, as there is the probability that additional amounts will be requested by the Army and Navy.

Red Cross blood donor centers are now in operation in the following cities: New York, Philadelphia, Baltimore, Buffalo, Rochester, N. Y., Indianapolis, Detroit, Pittsburgh, St. Louis, Boston, Milwaukee, Cleveland, Chicago, San Francisco, Los Angeles, Cincinnati, Washington, D. C., and Brooklyn.

According to the report seven commercial laboratories have contracts with the Government for processing plasma on a cost basis. The total number of donations during the first year of operations aggregated 82,857, of which 55,505 were made in the nine weeks of December and January.

The value of blood plasma in the treatment of burns and wounds and in combating shock was amply demonstrated at Pearl Harbor. Surgeons on duty there during the attack and in the days following, state in no uncertain terms that many lives were saved due to the use of plasma supplied to the armed forces by the local medical society, the American Red Cross and other agencies.

Woman's Auxiliary
to the
Medical Society of Virginia

President—MRS. E. LATANE FLANAGAN, Richmond.
President-Elect—MRS. H. W. ROGERS, Norfolk.
Recording Secretary—MRS. HAROLD W. POTTER, Hilton Village.
Corresponding Secretary—MRS. A. S. LILLY, Richmond.
Treasurer—MRS. REUBEN F. SIMMS, Richmond.
Chairman, Press and Publicity—MRS. HENRY M. SNEAD, Petersburg.

The National Meeting.

Last Call for reservations for the Twentieth Annual Convention of the Woman's Auxiliary to the American Medical Association, which will be held at Haddon Hall, Atlantic City, New Jersey, June 8-12.

Atlantic City extends a hearty welcome to you!

The Williamsburg-James City Auxiliary

Met at the home of Mrs. T. Brantley Henderson on March 3rd. Mrs. E. T. Terrell, president, presided. There were present ten members and one visitor, Dr. Eleanor H. Beamer, of the staff of the Eastern State Hospital.

The treasurer, Mrs. B. I. Bell, was requested to send our annual contribution to the Jane Todd Crawford and the State Maintenance funds.

A letter was read from our State Exhibit Chairman and an exhibit for the A.M.A. meeting at Atlantic City, June 8-12, was discussed.

A quiz on our new program material, "Be Informed", was conducted by our president, Mrs. Terrell.

We hope to have our State President, Mrs. Flanagan, with us at our May meeting and plans for her visit and entertainment were made.

Attention was called to the spring issue of "The Bulletin" and the secretary read the President's message on National Defense from same.

We make an effort each time to have the wives of the Medical Officers at Fort Eustis meet with us. Three were present at this meeting.

Refreshments were served during the social hour. The next meeting will be held in May.

M. HENDERSON,
(MRS. T. BRANTLEY HENDERSON)
Secretary.

The Warwick County Auxiliary

Entertained the State President, Mrs. E. L. Flanagan of Richmond, at luncheon at the James River Country Club, on March 23rd. The guest of honor spoke on "The Doctor's Wife in War Time". The newly elected president, Mrs. Guy C. Amory of Hilton Village, presided. Other officers of the Auxiliary are: Vice-president, Mrs. E. Greenspon; recording secretary, Mrs. E. W. Buckingham; treasurer, Mrs. Murray Dick. All of these are of Newport News. The President appointed the following as committee chairmen for the coming year: Pre-Natal, Mrs. Fred N. Thompson; Membership, Mrs. T. C. Lawford; Linen, Mrs. W. R. Payne; Program, Mrs. C. E. Holderby, Hygeia, Mrs. Russell Buxton; corresponding secretary, Mrs. J. W. Tankard; historian, Mrs. H. W. Potter; and publicity, Mrs. Paul Hogg.

Norfolk Auxiliary.

Mrs. Flanagan, the State President, also spoke before this Auxiliary at its annual Doctors' Day celebration, March the 24th. This, too, was a luncheon meeting and was held at Ames and Brownley's, a feature of the luncheon being a fashion show, with

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Mrs. Mallory Andrews, Mrs. Lemuel Mayo, Mrs. Brock Jones, and the young daughter of Dr. and Mrs. C. M. McCoy, as models. Mrs. Walter P. Adams, president, presided at the meeting, at which Mrs. R. H. Peake read "The Doctor", and made the presentation of the Auxiliary's annual gift of a year's subscription to the *Annals of Surgery* to the Norfolk County Medical Society. This was accepted on behalf of that organization by its secretary, Dr. Lockburn B. Scott. Mrs. Flanagan then gave an interesting talk on the work and aims of the State Auxiliary.

Chairman for Roanoke Meeting.

Those who plan to attend the State Auxiliary meeting in Roanoke, at the time of the Medical Society meeting, October 5-7, will be interested in knowing that Mrs. Mortimer H. Williams has accepted the chairmanship for the ladies' activities at that time.

Book Announcements

Synopsis of the Preparation and Aftercare of Surgical Patients. By HUGH C. ILGENFRITZ, A.B. M.D., Instructor in Surgery, Louisiana State University School of Medicine. And RAWLEY M. PENICK. Jr., Ph.B., M.D., F.A.C.S., Professor of Clinical Surgery, Louisiana State University School of Medicine. With foreword by Urban Maes, M.D., D.Sc., F.A.C.S., Professor of Surgery and Director of the Department, Louisiana State University School of Medicine. St. Louis. The C. V. Mosby Company. 1941. 532 pages. Cloth.

The authors of this text state, in its preface, that it is intended as a summary of the most useful knowledge in surgery which we have at this time, and this, precisely, is what the volume is.

The book deals chiefly with the preoperative and postoperative care of surgical patients, but it contains so much more information than that implied by its title that it is recommended as a most valuable guide to both the student and the practicing surgeon. The pathogenesis of the various complications is briefly but fully outlined, and the physiologic basis for the therapy of each is discussed. There is a good deal of relatively new work presented in some detail and the authors include many of the measures which are used in other clinics and by other surgeons.

The chapters dealing with Shock, and Fluid and Electrolyte Balance, respectively, are particularly noteworthy both for their completeness and for the orderly presentation of their contents. The entire book is marked by this orderly manner of organization, and is as easy to read as it is informative. The volume is very generously illustrated.

H. I. NEMUTH, M.D.

The Minds and Nerves of Soldiers. By EDWARD L. HANES, M.D. The Login Press, 1941. pp 221. Cloth. Price $3.00.

This book is an interesting account of the experiences of a psychiatrist attached to our army in the last war. The author started his services by examining newly inducted officers at Plattsburg and at the end of the war was Chief Consultant on the Headquarters Staff of the American Expeditionary Force in France.

His account of the induction examinations is extremely interesting and he discusses in some detail the types of problems encountered in this work. The problems which he describes are essentially the same as those that we are encountering at the present time and anyone who has engaged in induction examinations during this war would undoubtedly be interested in this section of the book.

That portion of the book which deals with problems encountered in France was also very interesting to the reviewer and served to point out very clearly the importance of screening out as many as possible of the psychiatrically unfit before entering the army. It was apparent that a very high percentage of psychiatric casualties in the last war occurred among individuals who were already making a poor adjustment to civil life and who were unable to adjust to new and strange surroundings and the loss of personal independence encountered in the army.

There is also a description of some methods of treatment used in the hospitals in France. This treatment was primarily symptomatic in nature and was designed to produce a quick return to duty rather than to bring about a complete adjustment of the personality. It is unfortunate that the author was not able to follow up a sufficient number of cases treated in this way to find out what ultimately happened to them.

On the whole the book affords very interesting reading and should be of some value to the psychiatrist or to any physician interested in military medicine.

P. H. DREWRY, JR., M.D.

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Official Publication of the Medical Society of Virginia

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Editor

AGNES V. EDWARDS
Business Manager

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Editorials

Oil

THERE seems to be a good deal of evidence to show that the regular ingestion of large doses of mineral oil by human beings is capable of depleting their Vitamin A reserve and of provoking in them symptoms of vitamin deficiency. Our guest editorial is a summary of the experimental and clinical facts available to date, and suggests the possible harmful results of continued mineral oil therapy. Dr. Arthur C. Curtis proposes a method of combating the danger, always giving cod liver oil with mineral oil. It occurs to us that it would be simpler if all mineral oil put on the market to be used for medicinal purposes were fortified to the point of saturation at body temperature with Vitamin A. It would then be incapable of robbing the body of Vitamin A and should therefore be innocuous. Manufacturers please take note.

Medicine and the Ministry

MEDICINE and religion have met at the bedside of the sick and the dying since the dawn of civilization. The history of medicine takes us back to the time when the priest and the medicine man were one. The priestly medicine of Egypt, the temple medicine of Greece, the monastic medicine of the Middle Ages, books on medical practice written for popular use by ministers like John Wesley, the great English Divine, bear testimony to the past intimate relations of these two professions.

When medicine became a science with a body of learning too extensive, too specialized and too profound, necessitating techniques and gadgets too complicated for a churchman to combine with his own studies equally extensive, specialized and profound and with his own techniques and duties equally complicated, the two groups parted company. Since that time the breach has been widened by those who were unlearned enough to state dogmatically that science and religion were incompatible.

Has this separation of the two professions gone too far? Is there reason in the efforts to bring them together again? Have they contributions which may prove mutually

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helpful? Many so believe. The late Dr. Ben Rosebro of Richmond, for instance, and the group of doctors and ministers he was able to influence thought so, and made a serious attempt at a cooperative movement in the interest of the sick. The Union Theological Seminary of Richmond thinks so and is attempting to include in its curriculum enough medical knowledge to make the minister a more effective visitant to the sickroom and a more understanding caller at the hospital. Certain it is that these two professions, both seeking to function for the good of mankind, should never overlook an opportunity for better understanding and collaboration.

Just how far a minister should enter the domain of medicine is a pertinent question. Psychology he must know, but not psychiatry. It should be forcefully explained to ministerial students that, in spite of notable examples to the contrary, those persons who have attempted to conduct confessionals, even though they were medical men seeking therapeutic effects through mental catharsis, are treading on treacherous ground. Here most of all a little learning is a dangerous thing. Morbid curiosity, particularly in matters relating to sex, often motivates the explorers of the secret sanctuary of disturbed men and women, and sometimes the questioner becomes more psychopathic than the questioned.

What can doctors tell the future "Sky Pilots" that will be helpful to them at the bedside and in their contacts with the sick and the dying? They would like, no doubt, to warn them about the unwisdom of quoting a doctor, of passing on to a parishioner remedies the minister himself has acquired faith in, of criticizing those who are in charge of the sick or of yielding to the temptation to brandish medical terminology.

The tactful young minister will not need to be told that the sick are easily fatigued and that visits should be brief, that a look may betray the gravity of a condition not appreciated by the sufferer, and that the visitor's mood must be neither too serious nor too gay. He will speak quietly but not in sepulchral tones. A visiting card left daily often serves a better purpose than an hour of emotional or over serious conversation. A little book of devotions left to be taken in broken doses is better medicine than a long sermon administered in a heroic dose.

The sensible minister will have no patience with bacteriophobia. He cannot be a coward where duty calls. Fortunately modern medicine has wiped out many of the epidemics that used to test his courage in serving his flock. To be careless of contagion where it exists would be foolhardy and not befitting a learned profession. To carry a sore throat or a cold into the sick room is an offense which should be rebuked. Germs can abide very comfortably in a consecrated throat. A resolution to remain at a safe distance when in the presence of the sick is praiseworthy. To wash the hands after leaving the room is good practice, but ministers like surgeons can learn not to touch. Germs are not broad jumpers.

Ministers are often summoned to the death bed, to read Holy Scripture, to pray and to talk comfortingly to the dying. Such errands of mercy are often more for the good of the surviving than of the dying, for it may be recalled that 90 per cent of those who die from illness (as opposed to those who die suddenly) are unconscious or delirious. Dying words are rarely uttered. When heard, they are usually the mutterings of the semi-conscious.

When doctors themselves are better men they will know more of the spiritual requirements of their patients and will be quick to recognize that the clergy can contribute enormously to their recovery. Even now they are convinced that too infrequently the sick and the dying receive the benefit of the clergy. Ways should be opened by which the wishes of such patients could be accurately determined and

quickly satisfied. Relatives and hospitals need to learn more about the religious needs of the sick. Studies should be instituted and means found whereby the offices of the church may be made easily available to the seriously ill who are often too fearful, too reticent, too weak to request the visit of a minister, but who would welcome the comfort of the church if it were tactfully offered.

Many of the great hospitals of our country have been founded by religious organizations. More frequently they need their sponsorship. Perhaps as America turns from her crass materialism to a consciousness of her spiritual needs, hospitals will have their chaplains as regularly as do our military organizations. Souls are ushered into eternity from both.

What Does the Future Hold?

IN 1141 B.C. the Philistines defeated the Israelites and took the ark of the Lord to Ashdod, Gath and Ekron. The ark was infected with bubonic mice and a great and destructive epidemic of plague swept with terrifying fury through all the cities of Philistia.

At the siege of Naples in 1495 the French invaders contracted from the Spanish occupants of the town a disease now known as syphilis, said to have been introduced by the sailors of Columbus, a gift of the New World to the Old.

Cortez and the Spanish Conquistadors in 1520 carried smallpox with decimating effect to the inhabitants of Mexico. First settlers in North America brought tuberculosis to the Indians. Traders in the far North carried measles with fatal result to the Eskimos. Recently a new and virulent form of malaria appeared in Brazil, brought there in airplanes from the interior of Africa.

History has again ample opportunity to repeat itself. What new and strange diseases await us with the return of our expeditionary forces from the tropical countries? Will they bring us the flukes of China, the Delhi fevers of India, the dysenteries and amoebae of Malaya, the rickettsial, viral and parasitic diseases of Africa?

The American doctor could profitably be learning about the tropical diseases he will most certainly encounter, not only in the troops he will accompany to the Tropics, but also in the soldiers who will be invalided back to this country. Patriotic citizens with the broom of political power in the hands of the ward stalwarts and the broom of domestic use in the hands of the humblest housewife and the members of her family, had best get to work cleaning every yard, alley and dump in every city of our country. Cleanliness is next to godliness and an epidemic is an ungodly thing.

Societies

Medical Examining Board of Virginia.

At the December, 1941, meeting of the Board, the following were granted licenses to practice medicine in Virginia:

Dr. Ernest Warren Adair, Roanoke.
Dr. Chapman H. Binford, Detroit, Mich.
Dr. Aaron Wilson Brown, Richmond.
Dr. Allen Leet Byrd, Danville.
Dr. Graydon Rader Evans, Dunbar.
Dr. David Ivan Farnsworth, Richmond.
Dr. Allen Montague Ferry, Chevy Chase, Md.
Dr. Thomas Madden Foley, Arlington.
Dr. Glen Gilbert Foster, Stonega.
Dr. Frank Baum Clayton Geibel, Dahlgren.
Dr. Arthur Gersabeck, Maybeury, W. Va.
Dr. Faith Janet F. Gordon, Roanoke.
Dr. Michael Greenwald, Norfolk.
Dr. George Smith Grier, III, Newport News.
Dr. Thomas Shetrond Hershey, Colony.
Dr. John Stewart Howe, Richmond.
Dr. Benjamin Isaacson, Arlington.
Dr. Walt R. Johnson, Macon, Ga.
Dr. Ludwig Helmut Korn, Norfolk.

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Dr. Carl J. Kornreich, Bronx, N. Y.
Dr. Ilse Lehmann, Burkeville.
Dr. Lawrence Robert Leviton, Norfolk.
Dr. Wiley D. Lewis, Radford.
Dr. Charles Howard McDevitt, Jr., Woodstock.
Dr. Robert Sylvester Munger, Lexington.
Dr. Alfred Ogus, Norton.
Dr. Philip Brower Parsons, Norfolk.
Dr. Charles Calhoun Powel, Harrisonburg.
Dr. John Orazio Rao, Detroit, Mich.
Dr. William Roberts Sandusky, Charlottesville.
Dr. Leonard G. Scott, Bridgeton, N. J.
Dr. Samuel S. Shouse, Luray.
Dr. George Albert Stewart, Jr., Clifton Forge.
Dr. Samuel Doswald Sturkie, Charlottesville.
Dr. John Thomas Sydnor, Norfolk.
Dr. Roy Anson Thornley, Arlington.
Dr. Helen Burton Todd, Farmville.
Dr. Leo Carl Varden, Arlington.
Dr. Harry Samuel Weitzman, Washington, D. C.
Dr. Francis Droit Willey, Norton.
Dr. Homer P. Williams, Amonate.

HOMEOPATHS

Dr. Anthony R. DiSario, Bassett.
Dr. Paul Regan Howard, Norton.
Dr. Joe Riddick Leigh, Radford.

OSTEOPATHS

Dr. Robert Gustave Scher, Brooklyn, N. Y.
Dr. William C. Spence, Jr., Raleigh, N. C.

The Wise County Medical Society

Met for their regular bi-monthly meeting on February 26th, at Norton, and the members were entertained at a delightful dinner by the physicians of that place.

After dinner the society was called to order by the Vice-President, Dr. F. B. Wolfe, and the following new members were admitted: Dr. Glen G. Foster, Stonega; Dr. Milton Millman, Dr. Alfred Ogus, Dr. Paul Howard, and Dr. F. D. Willey of Norton. A short discussion of the Health Program in the county was opened by Dr. P. R. Cronlund of the Norton Branch of the State Department of Health, and the Society approved the Health Unit's work and its methods of conducting the preventive medicine clinics and vaccinations.

It was voted to send flowers and a suitable message of encouragement to the Society's President, Dr. Samuel H. Rivers, formerly of Calvin, who had been ill in the George Ben Johnston Hospital at Abingdon, for the past month with a strep infection.

It was also decided at this meeting that the Wise County and the Clinch Valley Medical Societies should have a joint meeting on May 2nd in Norton, for which time an interesting program has been arranged by the Clinch Valley Medical Society's Secretary, Dr. C. B. Bowyer, Stonega. The speakers will be from the University of Virginia Medical School and the subjects will be timely topics of interest to all members.

The following officers for the current year were elected: President, Dr. W. B. Barton, Stonega; Vice-Presidents, Drs. Philip R. Cronlund, Norton, F. E. Handy, Appalachia, and J. D. Culbertson, Coeburn; and Secretary-Treasurer, Dr. C. L. Harshbarger, Norton. The Board of Censors are Drs. J. H. Hagy, Imboden, F. S. Givens, Wise, and F. B. Wolfe, Coeburn.

In addition to the above, the following members were present at this meeting: Dr. G. W. Botts, Norton; Dr. C. B. Bowyer, Stonega; Dr. T. E. Chapman, St. Paul; Dr. G. T. Foust, Norton; Dr. C. R. Jones, Dorchester; Dr. D. C. Keister, Osaka; and Drs. J. J. Porter, T. J. Tudor, Paul R. Howard, and Alfred Ogus, all of Norton.

The meeting adjourned until June for which time a full scientific program is being planned, the time and place to be announced later.

The Northampton County Medical Society

Met at Eastville on April the 15th, at which time Dr. Frank H. Redwood of Norfolk was the guest speaker, his subject being "Some Common Intracranial Conditions". At this meeting, also, reports were given by Dr. W. Y. Garrett of Northampton County and Dr. C. E. Critcher of Accomac County on the progress which has been made in the establishment and equipment of the Casualty Stations on "The Shore".

Tazewell County Medical Society.

Dr. Charles T. St. Clair, Jr., of Bluefield, W. Va., was guest speaker before this Society at its regular meeting on March the 12th, his subject being "The Combined Use of Typhoid Vaccine and Sulfathiazole in the Treatment of Eye Diseases". Dr. G. P. Panthers of Richlands read a paper on "Otitis Media and Its Complications" and showed as an adjunct to his paper some excellent movies with sound effect on the subjects of "Otoscopy" and "Acute Mastoiditis", prepared and shown through the courtesy of the Doho Chemical Company. At the business session, Dr. Homer P. Williams of Amonate was elected to membership.

Dr. Rufus Brittain of Jewell Ridge and Dr. Mary Elizabeth Johnston of Tazewell are president and secretary, respectively.

Norfolk County Medical Society.

An excellent program was presented at the Annual Clinic held on April the 9th. The morning session was held at the General Hospital with Dr. N. F. Rodman presiding. Following lunch there, the doctors adjourned to St. Vincent's Hospital for the afternoon session at which Dr. B. L. Parrish presided. The guest speaker was Dr. Edward V. Denneen, Lt. Commander in the U. S. Navy and chief surgeon on a hospital ship, his subject being "Recent Developments in War Surgery". A cocktail hour and dinner at Town Club closed the day.

Dr. Frank S. Johns of Richmond was a guest speaker before this Society on April the 13th, at which time his subject was "Carcinoma of the Colon, with Special Reference to the One Stage Operation".

Roanoke Academy of Medicine.

At the regular meeting of the Academy on April 6th, the following program was presented: Facial Deformities and Methods of Correction, Illustrated, by Dr. Warren B. Davis, Clinical Director of Oral Surgery, Jefferson Medical College, Philadelphia; and Freaks and Curiosities in Surgery, Illustrated, by Dr. John F. Erdmann, Surgeon, Post-Graduate Hospital, New York City.

Dr. M. H. Williams is President of the Academy and Dr. H. B. Stone, Jr., Secretary.

Richmond Academy of Medicine.

At the regular meeting of the Academy on April 14th, Dr. Nathan Bloom presented a case report on "Leiomyoma of the Stomach"; and Dr. James H. Means, Professor of Clinical Medicine at the Harvard Medical School and Chief of the Medical Service at the Massachusetts General Hospital, Boston, spoke on "How We Have Treated Graves' Disease During a Quarter of a Century".

News

A High-Spot of the Roanoke Meeting.

An interesting program is being arranged for the State Medical meeting which is to be held in Roanoke, October 5, 6 and 7. The program committee is endeavoring to arrange an afternoon session at Catawba Sanatorium, as has been done in the past when State meetings have been held here. If this can be worked into the schedule, it will be announced later. If a regular meeting is not held at Catawba Sanatorium, then you should by all means, while you are in this part of Virginia, avail yourself of the opportunity to visit this wonderful setup for tuberculosis patients.

The Catawba Sanatorium was opened July 30, 1909, and up to the present time has had 14,473 admissions. The present patient-bed capacity is 400. It is located on the site of the old Roanoke Red Sulphur Springs, in the Alleghany Mountains, and has an elevation of two thousand feet above sea level. It is about a twelve-mile drive from Roanoke, over a beautiful scenic highway. At this location the State owns twelve hundred acres. The Sanatorium operates its own farm and dairy, which alone consist of three hundred and fifty acres. It also operates and controls its own training school for nurses. After the completion of the two-year nursing course, the nurses receive diplomas and are graduate tuberculosis nurses. They are then given the privilege of taking an additional year's training in a general hospital, and upon finishing this course are eligible to take the State board examination to become registered nurses.

The charm and beauty of the surroundings are exceeded only by the gracious hospitality of those in charge. Dr. J. B. Nicholls, Superintendent, is loved by all who know him. Dr. L. R. Broome, Physician-in-Chief, with Dr. Nicholls, will extend to you, on your visit to Catawba Sanatorium, a welcome which can be equaled in hospitality only by other outstanding places in the State of Virginia.

Catawba Sanatorium is an institution of which Virginians, especially Roanokers, are proud. You have a very enjoyable visit in store for you, if you have never seen Catawba Sanatorium.

The doctors of Roanoke and the surrounding territory are looking forward to and awaiting your visit in October.

June 1 Closing Date for Program Papers.

In an effort to complete plans in the early summer for the program of the Roanoke meeting of the Medical Society of Virginia, notices have been sent

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all members of the Society, requesting those who wish to present papers at that time to advise the Executive Office, 1200 East Clay Street, Richmond, by June 1st. Please bear this date in mind and send titles promptly.

Invest Your Money Wisely—Buy Bonds for Freedom!

There is only one goal ahead in America's fight for freedom—victory. To reach that goal, we must put all the nation's resources into our war effort—man power, machine power, material power and money power.

We must not only win this war. We must win the peace and national security with that peace. In the nation's fiscal program, we think not only of the present, but of the future as well. Not all the necessary money for the war effort can be secured in tax revenues. Much of it the Government must borrow. Borrowing from banks and other lending agencies is restricted to the minimum because large loans from these sources expand the credit structure and contribute to inflation. In order to avoid the inflation threat, and at the same time to provide a security program for Americans, the Government asks for loans from all individuals. These loans are made through the purchase of United States Savings Bonds.

By lending dollars today, Americans safeguard the security of America for the future. At the same time, we build toward our own future security. Our money will be paid back with interest at a time when it may meet financial needs arising during the post-war transition period, school expenses of our children, or other family and individual demands and wants. While looking forward, we help ourselves today. When we invest dollars in bonds, we reduce our own funds to be used in buying everyday goods, and thereby help to curb runaway prices and inflation during the war period.

There are Savings Bonds for all individuals and for our medical associations. Series E Bonds are the "People's Bonds" which can be purchased only by individuals. The smallest costs $18.75 and pays $25 at the end of ten years—a 33⅓ per cent increase in value. An E Bond may be redeemed by an owner any time after sixty days from the date of issue. Hence, we can draw upon these financial reserves in case of emergency. Series F Bonds are also appreciation bonds, but these may be purchased by associations and corporations as well as individuals. The F Bonds are twelve-year bonds which provide a return equivalent to an annual interest rate of 2.53 per cent. The smallest costs $18.50 and pays $25 in twelve years; the largest costs $7,400 and pays $10,000 at maturity. Bonds of Series G are sold at par in denominations from $100 to $10,000, and these bonds pay interest at the rate of 2½ per cent throughout their twelve-year maturity period.

Freedom Bonds, Victory Bonds—we physicians and surgeons of Virginia must buy and continue to buy these war securities. There must be dollars for guns, bullets, planes, tanks, and ships, dollars to fight for national and personal security.

Medical College of Virginia News.

Dr. H. Hudnall Ware, Jr., Dr. L. L. Shamburger, and Dr. A. L. Carson attended the American Congress of Obstetrics and Gynecology in Saint Louis recently.

Dr. Frank Charles Mann of the Mayo Foundation and Dr. J. H. Means, chief of the medical service of the Massachusetts General Hospital, were recent college visitors.

Dr. I. A. Bigger attended the post-graduate clinics sponsored by the school of medicine extension division of the University of North Carolina, April 13-14, speaking on "Penetrating Wounds of the Thorax".

The college has received a grant of $9,100 for furniture for the new annex to Saint Philip Hall, dormitory for Negro nurses, and a grant of $19,000 for a program to be launched in nutrition by the college.

The annual Stuart McGuire lectures will be held May 7 and 8 at the college with Dr. John B. Youmans' associate professor of medicine and director of postgraduate instruction, Vanderbilt University Medical School, as the McGuire lecturer. The complete program is given below:

. . . Program . . .

(In cooperation with the Department of Clinical Education, Medical Society of Virginia)

THURSDAY, MAY 7

8:30 p.m.—Stuart McGuire Lecture, "The Meaning of Nutrition."

DR. JOHN B. YOUMANS, *Associate Professor of Medicine and Director of Postgraduate Instruction, Vanderbilt University Medical School, Nashville, Tennessee.*

FRIDAY, MAY 8

10:00 a.m.—The Physiology of the Vitamins.
DR. ROLLAND J. MAIN, *Professor of Physiology, Medical College of Virginia, Richmond, Virginia.*

11:00 a.m.—Nutrition Problems in Post-Operative Patients.
DR. H. B. MULHOLLAND, *Professor of Practice of Medicine, University of Virginia Department of Medicine, Charlottesville, Virginia.*

12:00 m.—The Recognition of Mild or Early Vitamin Deficiencies.
DR. JULIAN M. RUFFIN, *Associate Professor of Medicine in Charge of Physical Diagnosis, Duke University Medical School, Durham, North Carolina.*

1:15 p.m.—Luncheon.

3:00 p.m.—Ocular Manifestations in Deficiency Diseases.
DR. R. H. COURTNEY, *Professor of Ophthalmology, Medical College of Virginia, Richmond, Virginia.*

4:00 p.m.—The Significance and Treatment of Iron Deficiency Anemia.
DR. MAXWELL BERRY, *Associate in Medicine, Medical College of Virginia, Richmond, Virginia.*

8:30 p.m.—Stuart McGuire Lecture, "The Significance of Protein in the Diet."
DR. JOHN B. YOUMANS, *Associate Professor of Medicine and Director of Postgraduate Instruction, Vanderbilt University Medical School, Nashville, Tennessee.*

The lectures and clinics will be given in the Simon Baruch Auditorium, Egyptian Building, Thirteenth and Marshall Streets. Luncheon at Hunton Fall. *Fee: None.*

News from University of Virginia, Department of Medicine.

In connection with the Post-Graduate Course conducted by the Extension Division of the University of North Carolina, Dr. S. A. Vest held a Urology Clinic on the afternoon of March 13th at the Rex Hospital in Raleigh, N. C. Dr. Vest also addressed the physicians of the vicinity that night on the subject of Urology in General Practice.

Dr. G. Slaughter Fitz-Hugh discussed a paper on Tracheobronchial Tuberculosis before the Virginia Chest Society in Richmond, on March 31st.

On April 8th, at the Spring Post-Graduate Course held at the Gill Memorial Hospital in Roanoke, Virginia, Dr. Gayle Crutchfield addressed the group on the subjects: Diagnosis and Treatment of Orbital Tumors; Intracranial Complications Arising from Infections in the Paranasal Sinuses.

At the meeting of the Medical Society of Northern Virginia in Luray, Virginia, on April 8th, Dr. S. A. Vest addressed the group on the subject: Urology in General Practice. Dr. Vest also presented a paper at the meeting of the Middle Atlantic Section of the American Urological Association, in Philadelphia, on April 11th. His subject was "New Hemostatic Suture for Nephrotomy Wounds".

Dr. Fletcher D. Woodward spoke before the Detroit Otolaryngological Society on April 15th on "Management of Fractures of the Nose and Face".

On April 17th, Dr. John S. Lockwood, Associate in Surgery at the University of Pennsylvania, delivered an address before the Virginia Alpha Chapter of Alpha Omega Alpha, in the Medical Amphitheatre. He spoke on "The Progress Toward an Understanding of the Mode of Action of the Sulfonamides".

American Medical Association.

The Official Call has been issued for the ninety-third annual session of this Association to be held in Atlantic City, June 8-12th, under the presidency of Dr. Frank H. Lahey of Boston.

The House of Delegates will convene on Monday, the 8th, and the Scientific Assembly will open with the general meeting on Tuesday, the 9th, at 8 P. M. The various sections of the Assembly will meet on Wednesday and subsequently according to their respective programs.

If you plan to attend this meeting and have not made hotel reservations, it is suggested that you write at once to Dr. V. Earl Johnson, Chairman Hotel Committee, 16 Central Pier, Atlantic City, New Jersey. A full list of the hotels with rates appears in the *Journal of the American Medical Association.*

The American Medical Golfing Association

Will hold its annual tournament at Seaview Country Club, Atlantic City, on Monday, June 8. Forty trophies and prizes will be awarded. The clubhouse, where the golfers' banquet will be held at 7:00 p. m. on June 8, is one of the most elaborate in the country, featuring a tremendous indoor salt-water pool. The 250 bedrooms for guests will be available to AMGA Fellows who may write Walt P. Conaway, M.D., Chairman of the Atlantic City Golf Committee, 1723 Pacific Avenue, Atlantic City, New Jersey, for reservations.

All male Fellows of the American Medical Association are eligible and cordially invited to join the

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Association. Write Executive Secretary Bill Burns, 2020 Olds Tower, Lansing, Michigan, for an application blank. Participants in the tournament are required to present their home club handicap, signed by the club secretary, at the first tee on the day of play. No handicap over thirty is allowed. Only Active Fellows of the American Medical Golfing Association may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

Personnel Notes, State Department of Health.

Dr. William R. Martin has been appointed Acting Health Officer of Charlotte County, effective April, 1942, to take the place of Dr. R. Bruce Mallett, who has entered the military service in the Medical Corps of the U. S. Army Air Corps.

Dr. Beverly L. Holladay has resigned as Health Officer of Wythe County, effective April 1, 1942, to accept a position in Statesville, North Carolina.

Dr. Wallace E. Baker has been appointed Assistant Epidemiologist in the Division of Venereal Disease Control, effective March 15, 1942. Dr. W. E. Chapin of Richmond has been appointed to succeed Dr. Baker, who formerly was Field Epidemiologist for the Camp Lee Area with headquarters in Petersburg.

Dr. Wright Clarkson,

Petersburg, gave an illustrated talk before the Hopewell Kiwanis Club on April the 9th, on "Cancer Control and the Wonders of X-Ray". Dr. Wayne M. Phipps, program chairman, introduced Dr. Clarkson.

Dr. B. L. Carter

Recently returned to his home at Blue Spring Run, after spending a couple of months in Miami and Tampa, Florida.

Annals of Surgery.

Effective with the June issue, *Annals of Surgery* will be published in Philadelphia by J. B. Lippincott Company and simultaneously in Spanish at Buenos Aires by the Guillermo Kraft Company—a step toward the consolidation of medical interests in the United States and South America. *Annals of Surgery*—oldest surgical journal in the English language—was founded in 1885 by Dr. Lewis Stephen Pilcher who was its editor for fifty years. His son, James Taft Pilcher, is at present managing editor with an editorial board composed of doctors representing medical schools and national surgical societies of the United States and Canada.

Industrial Health Work Progressing in Virginia.

Dr. Orlen J. Johnson, assistant secretary of the Council on Industrial Health of the American Medical Association, spent several days during April in Virginia and had conferences with officers of the Medical Society of Virginia and members of its Committee on Industrial Health. Dr. Johnson expressed whole-hearted appreciation over the way industrial health is being promoted by the Society—the joining of efforts for this year of the Department of Clinical and Medical Education with the Committee on Industrial Health, securing speakers on phases of industrial medicine for the program of the Virginia Safety Conference to be held in Richmond, May 21-23, plans for talks before the Virginia Manufacturers' Association, and also the plan for giving a course in industrial health at the Medical College of Virginia.

Sight-Saving Classes.

Four colleges and universities, in cooperation with the National Society for the Prevention of Blindness, are offering courses for the training of teachers and supervisors of sight-saving classes this summer (1942). The institutions and the dates of these courses are as follows:

Peabody College for Teachers, Nashville, Tenn., June 22-August 1.

Wayne University, Detroit, Mich., June 29-August 7.

State Teachers College, Buffalo, N. Y., June 29-August 7.

Teachers College, Columbia University, New York, N. Y., July 6-August 14.

Details regarding the courses may be obtained from the respective colleges or from the National Society for the Prevention of Blindness, 1790 Broadway, New York City.

Dr. Alex N. Chaffin,

Recently at Dante, located at Woodstock, the first of this month, and will be associated with the Cora Miller Hospital where he will limit his practice to surgery.

Vitamin Films in Color

Eli Lilly and Company, Indianapolis, announces the release of three 16-mm. silent motion pictures in color descriptive of vitamin deficiency diseases. The films are available to physicians for showing before medical societies and hospital staffs. One

deals with thiamine chloride deficiency, one with nicotinic acid deficiency, and the third with ariboflavinosis. The major part of all films concerns the clinical picture presented by the patient with reference to treatment by diet and specific medication. They do not contain advertising of any description, nor is the name of Eli Lilly and Company mentioned.

The films were made at the Nutrition Clinic of the University of Cincinnati at the Hillman Hospital, Birmingham, Alabama, where studies were initiated in 1935, under the joint auspices of the Department of Internal Medicine of the University of Cincinnati and the University Hospitals of Cleveland. Subsequently, these investigations became a cooperative project between the Departments of Medicine of the University of Cincinnati and the University of Alabama, and the Department of Preventive Medicine and Public Health of the University of Texas.

Transfers.

The following members of the Society, now in Service, have, during the past month, notified us of their transfers:

Major E. J. Haden to Fort Monroe.
Capt. Guy C. Richardson to Chickasha, Okla.
Capt. Oswald M. Weaver to Des Moines, Iowa.
Capt. Ayer C. Whitley to care Postmaster, New York City.
Lt. James E. Amiss to Iceland.
Lt. Charles H. Dow to Langley Field.
Lt. D. O. Helms to Orangeburg, S. C.
Lt. Nowell O. Nelms to Maxwell Field, Ala.

Married.

Dr. George Stone Ferrell and Miss Ethel Callison Plunkett, both of Lynchburg, April 9th. He is a graduate of the Medical College of Virginia in 1940.

Dr. James Baker Twyman, Charlottesville, and Miss Bess Dariotas, Portland, Oregon, March 27th. Dr. Twyman is a graduate in medicine from the University of Virginia in 1940 and is at present completing an internship at the New Haven Hospital, New Haven, Conn.

Dr. Alvah L. Herring, Jr., and Miss Douglas Randolph Donnan, both of Richmond, April 18th. Dr. Herring is an alumnus of the University of Virginia Medical School, class of '41.

Dr. William Massie Smethie, class of '39, Medical College of Virginia, and Miss Avis Lee Harrington, Polkton, N. C., April 4. They will reside in Rocky Mount, N. C., where Dr. Smethie is resident physician at Park View Hospital.

Dr. C. C. Chewning, Jr.,

Richmond, has been appointed physician in charge of the medical service at the State Penitentiary, succeeding Dr. F. I. Bloise who resigned to accept a commission as Major in the United States Medical Corps.

Dr. D. Hunter Marrow

Has returned to his home in Boydton for the summer after spending the winter months at Daytona Beach, Florida.

The Spring Graduate Course

Of the Gill Memorial Hospital, Roanoke, which was completed early in April, was attended by a total of ninety-eight physicians from twenty-five states and Canada, a number of applicants having to be refused admission. There was a guest faculty of seventeen physicians.

Lynchburg Tumor Clinic.

The Cancer Committee of the Medical Society of Virginia has certified under its regulations a tumor clinic in Lynchburg, to be known as the Lynchburg Tumor Clinic. The Co-directors are Dr. Joseph W. Houck and Dr. John Devine, Jr. The clinic is associated with the Lynchburg General Hospital. Dr. Stafford Handy and Dr. Walter Thornton are the Radiologists, and Dr. Dennis Caldwell and Dr. James Wilkins are the Pathologists.

EDWIN P. LEHMAN, M.D., *Chairman.*

A Correction.

In the January 1942 issue of the MONTHLY, the error was made inadvertently of stating that Dr. A. Wilson Brown, recently resigned, was the first full time venereal disease officer for Richmond. We regret this statement as Dr. Francis W. Upshur was the first person to hold this position in Richmond, having served from April 1, 1938 to April 15, 1940.

Ex-Interne Club of Stuart Circle Hospital, Richmond.

The twelfth annual meeting of the Club was held in Richmond on April the 8th, under the presidency of Dr. A. S. Hurt, Jr., of Richmond. Approximately twenty members attended the entire program, which included clinics, demonstrations, and papers, many ot these dealing with war problems. Between the various sessions, those attending were entertained at luncheon at the Hospital and with a buffet supper at Commonwealth Club. Following the evening program, the Hospital Staff and members of the Club were guests of Dr. Stuart Michaux at his home, "Beaumont".

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Officers elected for the ensuing year were: President, Dr. Herman Richardson, Midlothian; vice-president, Dr. Charles Newland of Brevard, N. C.; and secretary-treasurer, Dr. Reuben F. Simms (re-elected), Richmond.

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Obituaries

Dr. Aaron Jeffery,

For fifty-five years a member of the Medical Society of Virginia, died at his home in Newport News on April the 14th. He was a native of Richmond and seventy-nine years of age. Dr. Jeffery graduated from the Medical College of Virginia in 1884 and practiced for some years in Richmond before moving to Newport News in 1897 where he had since been actively identified with medical interests of that place. His wife died several years ago.

Dr. William Binford King,

Well known physician of northern Virginia and former resident of Richmond, died as the result of a heart attack at his home in Arlington, on April the 10th. He was fifty-three years of age and graduated in medicine from the George Washington University and was for a number of years a member of its faculty as also for a time of the Georgetown University medical faculty. He was a member of his local, state and national medical associations and always took an active part in medical affairs in his community. At the time of his death he was assistant chief medical officer of the Emergency Medical Service in the Washington, D. C., metropolitan area defense organization. His wife, three children and a large family connection survive him.

Dr. Joseph Benjamin Bailey,

Well known physician of Keysville, died suddenly on April 6th while making a call. He was a native of Chesterfield County and seventy-two years of age. Dr. Bailey graduated from the Medical College of Virginia in 1894. He was formerly a member of the Medical Society of Virginia. His wife and two sons, Drs. D. Herman Bailey, Sandston, and J. R. Bailey, Keysville, survive him.

Dr. Harry Fletcher White,

A well known former resident of Norfolk, but more recently of New York City, died on January 23rd of angina pectoris. He was fifty-eight years of age and a graduate of the former University College of Medicine, Richmond, in 1908. Dr. White entered the U. S. Public Health Service in 1913 and at the time of his death was surgeon in charge of the U. S. P. H. S. Hospital in New York. He was formerly a member of the Medical Society of Virginia. Besides his wife, he is survived by a daughter and four sons, two of them being Drs. S. C. and Harry F. White, Jr. A brother is Dr. Rooker J. White of Keller.

Dr. Frank Eugene Booker,

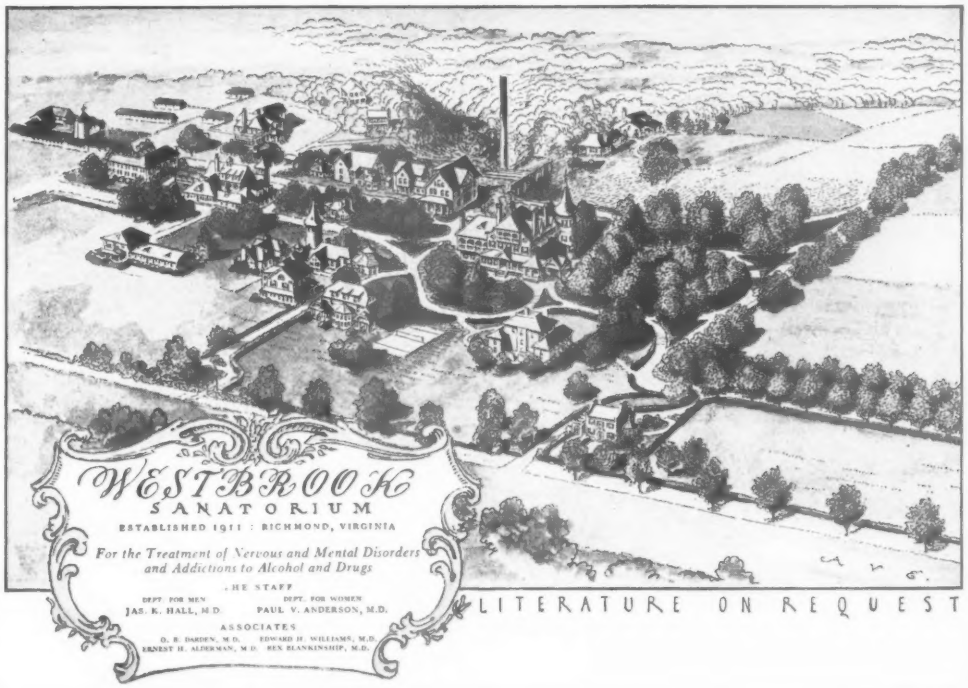
Prominent physician of Halifax County, died March 26th, after an illness of several years. He was sixty-seven years of age and a graduate of the Medical College of Virginia in 1898. Dr. Booker was formerly a member of the Medical Society of Virginia. His wife and four children survive him.

Dr. Joseph Bolivar DeLee,

Internationally known obstetrician of Chicago, died April 2nd, at the age of seventy-two. In addition to founding Chicago's Lying-In Hospital and assisting in delivering more than 8,000 babies, he had written several books on obstetrics. Dr. DeLee taught obstetrics at Northwestern University for thirty-two years and had been professor emeritus at the University of Chicago since 1929.

Vice-President of the Upjohn Firm Dies.

Malcolm Galbraith, vice-president and director of sales of the Upjohn Company, died Friday morning, April 10, in Kansas City. Mr. Galbraith was born in Bowmanville, Ontario, Canada, October 23, 1876. He received his bachelor of pharmacy degree at Ontario College of Pharmacy in 1898, entering in the drug business in Ontario the same year. He later became a naturalized citizen of the United States. In 1909 he left the H. K. Mulford Company, of Philadelphia, to join the Upjohn Company. In October 1929 he was elected to the board of directors and named director of sales. He was made vice-president of the company in May, 1936.



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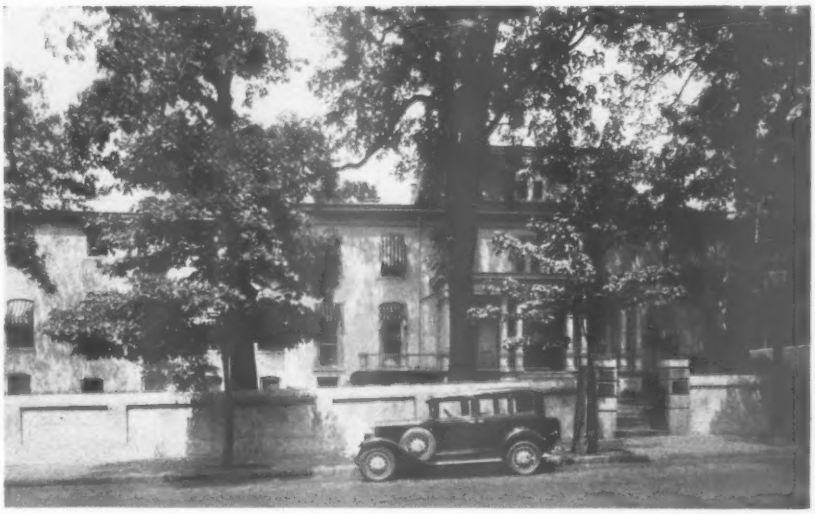

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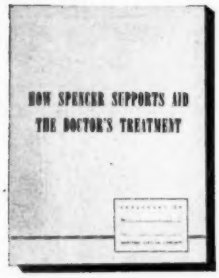

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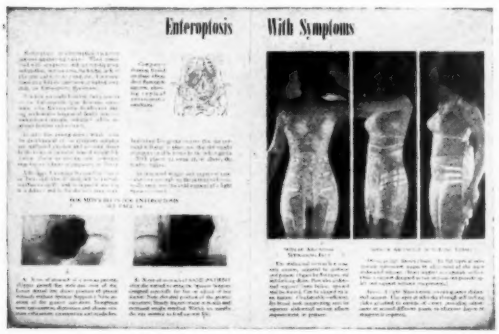

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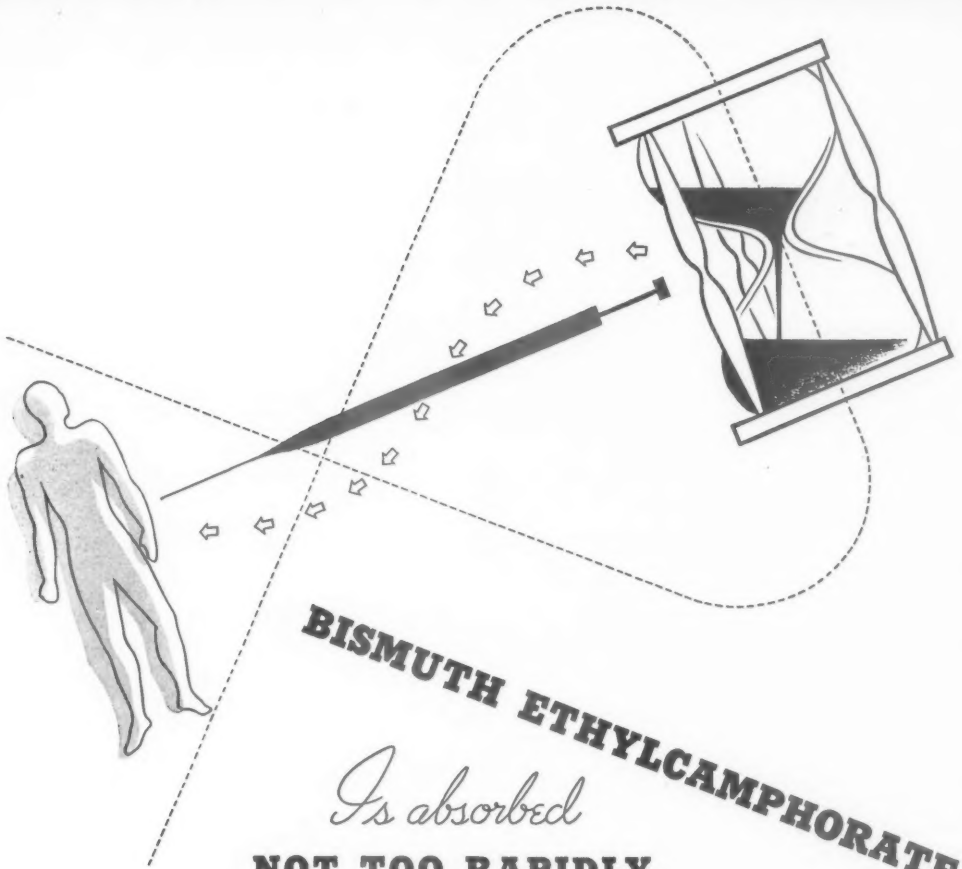

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Sterile Solution Bismuth Ethylcamphorate is the bismuth salt of ethyl camphoric acid dissolved in sweet almond oil. It is available in boxes of six and twenty-five 1 cc. ampoules, and in 30 cc. vials.

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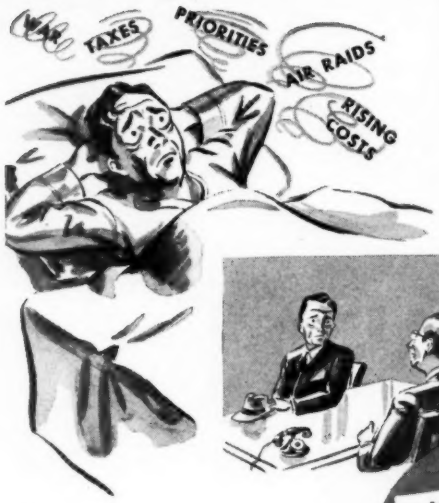

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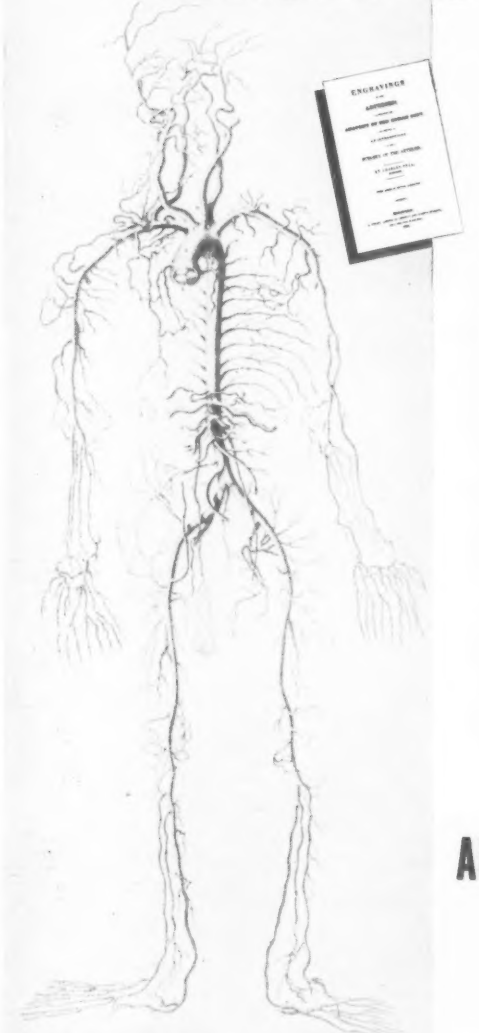

Reproduced from the 1833 edition of "Anatomy of the Human Body" as drawn by the master artist-anatomist and surgeon, Sir Charles Bell. He depicts the "Scheme of the Arterial System."

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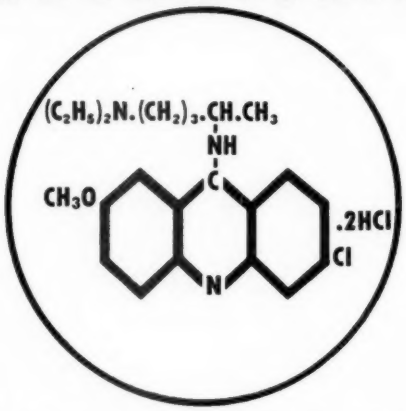

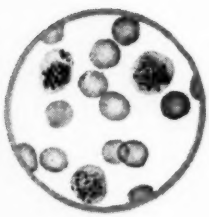

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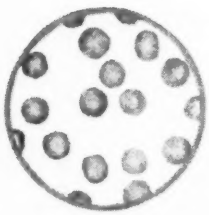

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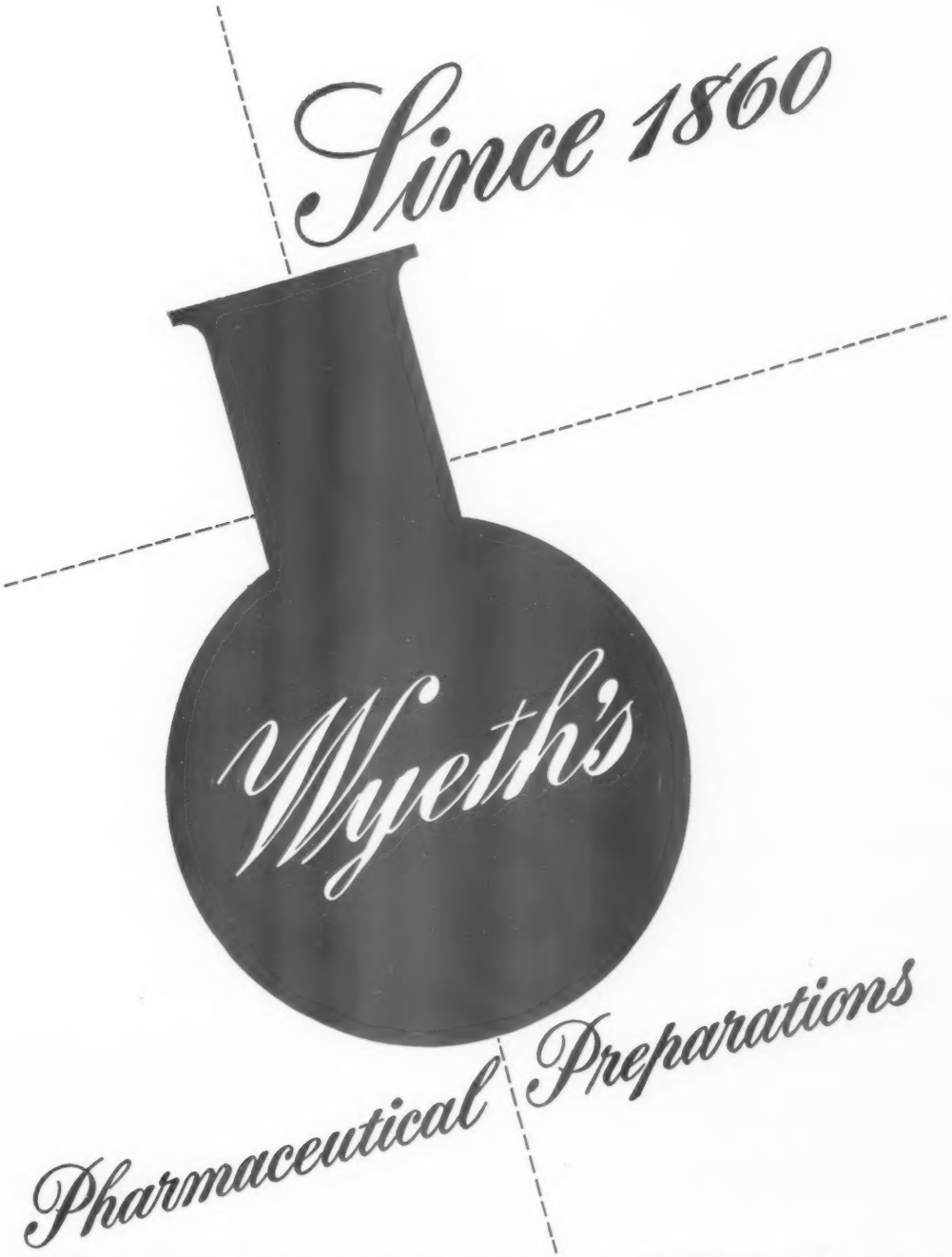

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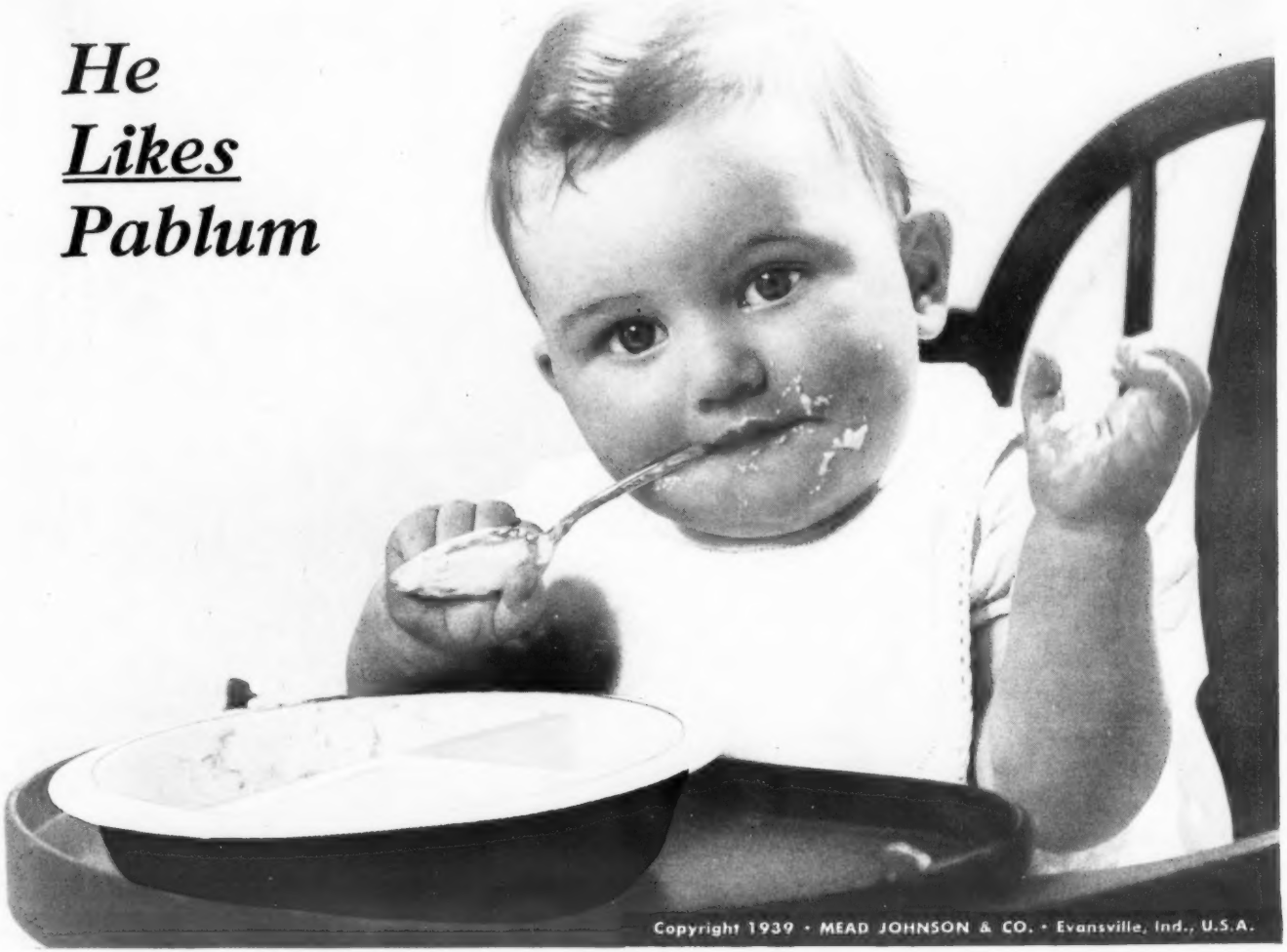

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